

Greek, Roman, and Byzantine
Bronzes from Anatolia and
Neighbouring Regions

EDITED BY
ERGÜN LAFLI



BAR INTERNATIONAL SERIES 3038

2021

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COVER IMAGE *A bronze child's head at the Museum of Amasra, northwestern Turkey. Image by Ergün Laftl, 2007*

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List of Abbreviations

Acc. no.: Accession number.
BIAA.: The British Institute at Ankara.
BM: The British Museum.
Cat. no.: Catalogue number.
Cm.: Centimeter.
DEU.: Dokuz Eylül University, Izmir.
Diam.: Diameter.
Diss.: Dissertation.
Ed.: Editor.
Eds.: Editors.
Fasc.: Fascicule.
Fig.: Figure.
Figs.: Figures.
G.: Gram.
H: Height.
Kg: Kilogram.
Km: Kilometer.
L.: Length.
Lt.: Liter.
M.A.: Master of Arts.
Max: Maximum.
M: Meter.
Mid: Middle.
Mill.: Millenium.
Mm.: Millimeter.
N.: Note.
No.: Number.
Nos.: Numbers.
P.: Page.
Pp.: Pages.
Pl.: Plate.
Pls.: Plates.
St: Saint.
Tab.: Table.
Th.: Thickness.
Trans.: Translated.
Unpubl.: Unpublished.
U.S.: United States.
Vol.: Volume.
Wg.: Weight.
W.: Width.

Foreword

Maurizio Buora

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This volume has its main focus on Anatolia. The archaeological heritage of that region is immense and far from being completely known and above all studied. Ergün Lafli is one of the few – I would say very few – scholars in Turkey who has the clear intention of promoting the study of important parts of this heritage and at the same time of increasing knowledge, especially abroad, about the results achieved by Turkish scholars. This double aspect of his intense activity is reflected in the conception of this volume, which is part of a now conspicuous series edited by him, dedicated to the study and dissemination of important groups of material culture of ancient Anatolia.

Of the forty-five papers, that make up this volume, many are the work of young scholars, mostly from Turkey; they are joined by others from *e.g.* Georgia, Greece, Iran, Italy, Serbia, Slovenia and the USA. The topic, of extreme importance, is addressed here over a very long period of time from the Hittites to the Byzantine age, with a main focus on Greek and Roman bronzes.

After that, for many decades, a large part of the archaeological heritage of Asia Minor has been investigated - with excavations and research – and studied above all by international scholars, Western European and North American, it is very significant that a large group of competent scholars from Turkey appear in an international scenario.

Those who follow the research's advancement in this region know that scientific production here is very abundant, but largely written in Turkish and therefore scarcely accessible for those living abroad. On the other hand, researchers from the Anatolian area too often seem to ignore the studies published outside of their country, which would be extremely useful for them. The union between the national and international realities, which Ergün Lafli often seeks, appears in this case as a happy and fruitful contamination.

Some essays are completely preliminary presentations, which await a later study; others, on the other hand, refer to complexes of objects which have long entered in the archaeological literature, such as Alliano's surgical instruments or Urartian plates from Giyimli, which have long wide literature. Overall the book offer an articulated image of the intellectual vivacity of the local archaeological research.

Udine,
June 1, 2021

Abstract and Keywords in English, French, German, Italian and Turkish

Abstract: In this book Greek, Roman, and Byzantine bronzes from Anatolia and neighbouring regions are subjected. The book focuses on bronze and other metal finds from several ancient sites of Asia Minor and other regions in the Mediterranean. It consists of four main parts and 45 papers in total which deal with various genres of ancient bronze material.

In the first part the focus is Pre-Greek bronzes from Anatolia. Presented sites and museums are as follows (in alphabetical order): Museum of Afyonkarahisar, Boğazköy-Ḫattuša, Çemialo, Museum of Karaman, Kastamonu, Nif-Olympus and Museum of Şanlıurfa.

In the second part the focus is Greek, Roman, and Byzantine bronzes from Anatolia. Presented sites and museums are as follows (in alphabetical order): Allianoi, Ancyra, Arycanda, Cremna, Ephesus, Juliopolis, Isparta and Olba.

In the third part the focus is the bronzes from neighbouring regions. Presented sites, museums and countries are as follows (in alphabetical order): Phocian Anticyra in Greece, Gonio-Apsarus in Georgia, Köhn Pāsgāh Tepesi in Iran, Luzzi and Bisignano in Italy, Persepolis in Iran, Sillene in Italy, Šljivovac in Serbia, Slovenia, Timacum Maius in Serbia, Vani in Georgia and Upper Moesia.

In the fourth part a common bibliography for the bronze researches in Asia Minor and neighbouring regions have been created.

Thus, the book offers numerous unpublished materials as well as new insights into the bronze archaeology of Anatolia as well as the rest of the ancient eastern Mediterranean.

Keywords: Ancient bronzes, metals, implements, figurines, lamps, ancient Greek archaeology, Roman archaeology, Byzantine archaeology, Anatolia, Asia Minor, Turkey, Greece, Italy, eastern Mediterranean, Black Sea area, Balkans, southeastern Europe, ancient Near East.

Résumé – Bronzes grecs, romains et byzantins d’Anatolie et des régions voisines: Dans cette monographie, les bronzes grecs, romains et byzantins d’Anatolie et des régions voisines sont présentés. La monographie se concentre sur les découvertes en bronze et autres métaux provenant de plusieurs sites antiques d’Asie Mineure et du pourtour méditerranéen. La monographie est composée de quatre parties principales et de 45 articles au total, lesquels traitent de divers genres d’objets en bronze la plupart.

Dans la première partie, l’accent est mis sur les bronzes pré-grecs d’Anatolie. Les sites et musées présentés sont les suivants (par ordre alphabétique): Musée d’Afyonkarahisar, Boğazköy-Ḫattuša, la crête de Çemialo, Musée de Karaman Kastamonu et Musée de Şanlıurfa.

Dans la deuxième partie, l’accent est mis sur les bronzes grecs, romains et byzantins d’Anatolie. Les sites et musées présentés sont les suivants (par ordre alphabétique): Allianoi, Musée d’Amasra, Arycanda, Cremna, Éphèse, Juliopolis, Musée d’Isparta, Musée de Kahramanmaraş, Nicomédie, Nif-Olympus et Olba.

Dans la troisième partie, l’accent est mis sur les bronzes des régions voisines. Les sites, musées et pays présentés sont les suivants (par ordre alphabétique): Phocéenne Antikyra en Grèce, Gonio-Apsaros en Géorgie, Köhn Pāsgāh Tepesi en Iran, Luzzi et Bisignano en Italie, en Mésie Supérieure, Persepolis en Iran, Sillene en Italie, Šljivovac en Serbie, Slovénie, Timacum Maius en Serbie et Vani en Géorgie.

Dans la quatrième partie, une bibliographie commune pour les recherches sur les bronzes en Asie Mineure et dans les régions voisines a été créée.

Le livre offre de nombreux matériaux inédits ainsi que de nouvelles perspectives sur l’archéologie du bronze d’Anatolie ainsi que sur le reste de l’ancienne Méditerranée orientale. Le livre présente de

nombreux inédits et offre de nouvelles perspectives pour la recherche archéologique sur les objets en bronze pour les périodes antique et médiévale découvert(e)s sur le pourtour méditerranéen.

Mot-clefs: Bronzes antiques, métaux, instruments, figurines, lampes, archéologie grecque antique, archéologie romaine, archéologie byzantine, Anatolie, Asie mineure, Turquie, Grèce, Italie, Méditerranée orientale, région de la mer Noire, Balkans, Europe du sud-est, ancien Proche-Orient.

Zusammenfassung – Griechische, römische und byzantinische Bronzen aus Anatolien und den angrenzenden Regionen: In diesem Buch werden griechische, römische und byzantinische Bronzen aus Anatolien und den angrenzenden regionen behandelt. Das Buch konzentriert sich auf Bronze- und andere Metallfunde aus mehreren antiken Stätten Kleinasien und anderen regionen des Mittelmeers. Es besteht aus vier Hauptteilen und insgesamt 45 Aufsätzen, die sich mit verschiedenen Sorten antiken Bronzematerials befassen.

Im ersten Teil stehen vorgriechische Bronzen aus Anatolien im Mittelpunkt. Die präsentierten Orte und Museen sind wie folgt (in alphabetischer Reihenfolge): Afyonkarahisar (Museum), Boğazköy-Ḫattuša, Çemialo, Karaman (Museum), Kastamonu, Nif-Olympus und Şanlıurfa (Museum).

Im zweiten Teil stehen griechische, römische und byzantinische Bronzen aus Anatolien im Mittelpunkt. Die präsentierten Orte und Museen sind wie folgt (in alphabetischer Reihenfolge): Allianoi, Ankyra, Arykanda, Amasra (Museum), Kremna, Hadrianopolis, Iuliopolis, Kahramanmaraş (Museum) und Olba.

Im dritten Teil stehen die Bronzen aus Nachbarregionen im Fokus. Die präsentierten Orte, Museen und Länder sind wie folgt (in alphabetischer Reihenfolge): das Phokische Antikyra (Griechenland), Gonio-Kastellum-Apsaros (Georgien), Köhn Pasgah Tepesi (Iran), Luzzi und Bisignano (Italien), Persepolis (Iran), Sillene (Italien), Šljivovac (Serbien), Slowenien, Timacum Maius (Serbien), Vani (Georgien) und Obermoesien.

Im vierten Teil wurde eine gemeinsame Bibliographie für die Bronzeforschung in Kleinasien und den angrenzenden regionen erstellt.

So bietet das Buch zahlreiche unveröffentlichte Materialien sowie neue Einblicke in die Welt antiker Bronzegegenstände in Anatolien, aber auch weiterer regionen des östlichen Mittelmeers.

Schlüsselwörter: Antike Bronzen, Metalle, Geräte, Figuren, Lampen, Antike, griechische Archäologie, römische Archäologie, byzantinische Archäologie, Anatolien, Kleinasien, Türkei, Griechenland, Italien, östliches Mittelmeer, Schwarzmeerraum, Balkan, Südosteuropa, alter Naher Osten.

Riassunto – Bronzi greci, romani e bizantini dell’Anatolia e delle regioni limitrofe: Oggetto di questo volume sono bronzi greci, romani e bizantini dell’Anatolia e delle regioni limitrofe. Il libro si concentra sui reperti in bronzo e altri metalli provenienti da diversi siti antichi dell’Asia Minore e di altre regioni del Mediterraneo. Esso si compone di quattro parti principali e 45 contributi che trattano vari generi di oggetti di bronzo.

Nella prima parte il focus è sui bronzi pre-greci dell’Anatolia. I siti e i musei presentati sono i seguenti (in ordine alfabetico): Museo di Afyonkarahisar, Boğazköy-Ḫattuša, Çemialo, Museo di Karaman, Kastamonu, Nif-Olympus e Museo di Şanlıurfa.

Nella seconda parte il focus è sui bronzi greci, romani e bizantini dell’Anatolia. I siti e i musei presentati sono i seguenti (in ordine alfabetico): Allianoi, Ankyra, Arykanda, Museo di Amasra, Kremna, Hadrianopolis, Iuliopolis, Museo di Kahramanmaraş e Olba.

Nella terza parte l’attenzione si rivolge ai bronzi delle regioni limitrofe. I siti, musei e paesi presentati sono i seguenti (in ordine alfabetico): Antikyra in Grecia, Gonio-Apsarus in Georgia, Köhn Pāsgāh Tepesi in Iran, Luzzi e Bisignano in Italia, Persepolis in Iran, Sillene in Italia, Šljivovac in Serbia, Slovenia, Timacum Maius in Serbia, Vani in Georgia e Alta Mesia.

Nella quarta parte è stata collocata la bibliografia comune per le ricerche sul bronzo in Asia Minore e regioni limitrofe.

Pertanto, il libro offre numerosi materiali inediti e nuove informazioni sull'archeologia del bronzo dell'Anatolia e dell'antico Mediterraneo orientale.

Parole chiave: Bronzi antichi, metalli, strumenti, statuette, lucerne, archeologia greca antica, archeologia romana, archeologia bizantina, Anatolia, Asia Minore, Turchia, Grecia, Italia, Mediterraneo orientale, area del Mar Nero, Balcani, Europa sud-orientale, antico Vicino Oriente.

Özet – Anadolu ve Çevresinden Antik Yunan, Roma ve Bizans Bronz Buluntuları: Bu kitapta Anadolu ve çevre bölgelerden Yunan, Roma ve Bizans bronzları konu edilmektedir. Kitapta, Küçük Asya'nın çeşitli antik bölgelerinden ve Akdeniz'deki diğer bölgelerden elde edilen bronz ve diğer metal buluntulara odaklanılmıştır. Dört ana bölümden ve çeşitli antik bronz malzeme türlerini ele alan toplam 45 makaleden oluşur.

İlk bölümde odak noktası Anadolu'dan Yunan öncesi bronzlardır. Sunulan yerler ve müzeler aşağıdaki gibidir (alfabetik sırayla): Afyonkarahisar Müzesi, Boğazköy-Ḫattuša, Çemialo, Karaman Müzesi, Kastamonu, Nif-Olympos ve Şanlıurfa Müzesi.

İkinci bölümde ise Anadolu'dan Yunan, Roma ve Bizans bronzlarına odaklanılmıştır. Sunulan yerler ve müzeler şunlardır (alfabetik sırayla): Alliano, Ankyra, Arykanda, Juliopolis, Kremna ve Olba.

Üçüncü bölümde Anadolu'ya komşu ülkelerin metal buluntuları konu edilmiştir. Tanıtılan yerleşim yerleri, müzeler ve ülkeler aşağıdaki gibidir (alfabetik sırayla): Gürcistan'da Gonio Kalesi-Apsaros, Gürcistan'da Vani ve Yukarı Moesia, İran'da Köhn Pāsgāh Tepesi, İran'da Persepolis, İtalya'da Luzzi ve Bisignano, İtalya'da Sillene, Sırbistan'da Šljivovac, Slovenya, Sırbistan'da Timacum Maius, Yunanistan'da Phokia Antikyra.

Dördüncü bölümde Küçük Asya ve komşu bölgelerdeki bronz araştırmaları için ortak bir kaynakça oluşturulmuştur. Bu nedenle kitap, çok sayıda yayınlanmamış materyalin yanı sıra Anadolu'nun bronz arkeolojisi ve eski Doğu Akdeniz'in geri kalanı hakkında yeni bilgiler sunmaktadır.

Anahtar Kelimeler: Bronz objeler, metal objeler, aletler, figürinler, kandiller, Antik Yunan arkeolojisi, Roma arkeolojisi, Bizans arkeolojisi, Anadolu, Türkiye, Yunanistan, İtalya, Doğu Akdeniz, Karadeniz Bölgesi, Balkanlar, Güneydoğu Avrupa, eski Yakındoğu uygarlıkları.

Introduction

Ergün Laflı

Professor Ergün Laflı (Dokuz Eylül University, Izmir)

*Dokuz Eylül Üniversitesi, Edebiyat Fakültesi, Arkeoloji Bölümü, Tınaztepe/Kaynaklar Yerleşkesi, Buca,
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Bronze finds are patchy, unsuccessfully documented and generally not well-known in Turkey in comparison with Greece and Italy. The number of studies is fewer than in Italy and Greece, even though there are several hundreds of excavations, museums and surveys across Turkey with thousands of bronze finds of almost all periods. The art of Greek, Roman, and Byzantine bronzes from Anatolia is not widely known and the number of publications on Bronze and Iron Age examples is larger than the classical and Byzantine bronzes. Most of the previous literature on Greek, Roman, and Byzantine bronzes from Anatolia is based only on excavation reports. In Turkey the main sites for the study of bronze finds of the Early Byzantine period are Ephesus and Sardis (**fig. 1.1**). So far, very few catalogues of such excavated finds have been created; of these, the recent publication of Andrea M. Pülz is very crucial.¹ Archaeometric research on bronze finds from Asia Minor have been undertaken since the 1980s, but there is still a need for research concerning production, main typologies, distribution, chronology, mining technologies etc. which have been neglected.

This book focuses on Greek, Roman, and Byzantine bronzes from Anatolia and neighbouring regions including bronze and other metal finds from several ancient sites of Asia Minor and other regions in the Mediterranean. It consists of four main parts and 45 papers in total. The greater part of this book concerns ancient Anatolia, but other presented countries are as follows (in alphabetical order; **fig. 1.1**): Georgia, Greece, Italy, Iran, Serbia and Slovenia. Presented sites and museums in Turkey are as follows (in alphabetical order; **fig. 1.1**): Museum of Afyonkarahisar, Allianoi, Arycanda, Boğazköy-Ḫattuša, Cremna, Ephesus, Juliopolis, Kastamonu, Museum of Isparta, Museum of Karaman, Nicomedia, Nif-Olympus, Museum of Şanlıurfa and Olba; and in other countries (in alphabetical order; **fig. 1.1**): Phocian Anticyra in Greece, Gonio Fortress-Apsarus in Georgia, Köhn Pāsgāh Tepesi in Iran, Luzzi and Bisignano in Italy, Persepolis in Iran, Sillene in Italy, Šljivovac in Serbia, Slovenia, Timacum Maius in Serbia, Vani in Georgia and Upper Moesia.

Examples of the following bronze groups are dealt in this book: figurines, finger rings, lamps, inscribed objects, vessels, statues, surgical instruments and other genres of *instrumenta domestica*. The book also covers following periods (chronologically): the Hittite period, Late Bronze Age, second millennium BC., Iron Age, Geometric period, Archaic period, Classical period, Hellenistic period, Roman period, Early Byzantine period and Middle Byzantine period. Although our focus in this book is Greek, Roman, and Byzantine periods, a few papers dealt with the second millennium BC. and include Near Eastern bronzes. Lead, silver, gold and other metals are excluded from this book. There are also some papers dealing with archaeometric (chapter 43) and other technical issues (chapters 35 and 42).

All the references used in this book are collected in a joint bibliography in part 4. The aim was to summarise all previous main works on Greek, Roman, and Byzantine bronzes from Anatolia and neighbouring regions.

A few of the present papers were presented or offered to the 17th International Congress of Ancient Bronzes which was held in 2011 in Izmir, Turkey (**figs. 1.2-3**). The abstracts booklet of this congress was published in 2011.²

All the papers are in English, each with abstracts and keywords both in English and Turkish. Chapters 9 and 42 were originally in German, but translated by myself into English. At the beginning of the book we have abstracts and keywords in English, French, German, Italian and Turkish.

Abbreviations are applied through the whole book and listed at the beginning. A list of figures has been added in one single unit at the beginning for whole book.

The preparation of this book spanned from May 2018 to January 2021 without any interruption. In May 2018 BAR Publishing Ltd. accepted our proposal to publish this book in BAR Int. Ser. The text was finally submitted to Oxford on 1 March 2021. Both Coronavirus disease pandemic and

¹ Pülz 2020.

² Laflı 2011.



Figure 1.1. Map of the eastern Mediterranean with represented archaeological sites and museums in this volume (by S. Pataci, 2020).



Figure 1.2. Participants to the 17th International Congress on Ancient Bronzes, held in 2011, in Izmir, Turkey (by A. Sideris, 2011).



Figure 1.3. Poster of the 17th International Congress on Ancient Bronzes (by C. Köktürk, 2010).

Ergün Laftı

the earthquake in Izmir in 2020 have, however, made its preparation more difficult.

I would like to thank for the following persons for various help (in alphabetical order): Dr Maurizio Buora (Udine), Dr Eva Christof (Graz), Ms Alev Çetingöz (Izmir), Dr Ruth Fisher (Oxford), Dr Gülseren Kan Şahin (Sinop), Professor Stephen Mitchell (Berlin), Ms Allison Siegenthaler (London) and Professor Hugo Thoen (Deinze/ Ghent).

Istanbul,
June 1, 2021

Part I

Pre-Greek Bronzes from Anatolia

The Hittite Sword from the 1991 Season at Boğazköy-Ḫattuša and its Akkadian Inscription

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Abstract: During the shifting of the route of the village road which was carried out at the site of Boğazköy Ḫattuša, passing the steep slopes west of Ḫattuša ruins, a Hittite period bronze sword with a cuneiform inscription was discovered. The sword was found about 750 m. away from the monumental Lion Gate. Casting technique is that made of hard bronze. The weight of the sword is 680 gr and the length is 79 cm. A single line inscription from the handle to the end portion of the sword was written in Akkadian. This votive inscription mentions Tudhaliya II, the Hittite king, presented the sword to the God of the Storm because of his victory over the country of Aššūwa. Except for the well-known dagger of Anitta, which has different features, there is no similar example yet known. The bronze sword once again proves that Boğazköy-Ḫattuša and other Hittite centres will give us archaeological and epigraphic finds full of surprises in the future.

Keywords: Bronze sword, Akkadian inscription, Tudhaliya II, second millennium, the Hittites, Boğazköy-Ḫattuša, central Turkey.

Özet – Boğazköy-Ḫattuša Kazıları 1991 Sezonunda Ele Geçirilmiş Olan Hitit Kılıcı ve Akkadça Yazıtı: Boğazköy-Ḫattuša yerleşiminin sit alanında köy yolu güzergahının örenyeri dışına kaydırılması çalışmasında, Ḫattuša örenyerinin batısındaki dik yamaçlardan geçerek güneye doğru devam eden yol çalışması esnasında Hitit Dönemi'ne ait üzeri çivi yazılı bronz bir kılıç ele geçmiştir. Kılıcın buluntu yeri anıtsal Aslanlı Kapı'nın yaklaşık 750 m. uzağındadır. Sert bronzdan döküm tekniğinde yapılmıştır. Kılıcın ağırlığı 680 gr, uzunluğu ise 79 cm'dir. Kılıcın sap kısmından uca doğru tek bir satırdan oluşan yazıt Akkadça'dır. Yazıt, Hitit kralı II. Tuthaliya'nın Aššūwa ülkesine karşı kazandığı zaferden dolayı Fırtına Tanrısı'na sunmuş olduğu kılıçların adak yazıtını oluşturmaktadır. Farklı özelliklere sahip meşhur Anitta Hançeri dışında bir benzeri şimdilik yoktur. Bronz kılıç, Boğazköy-Ḫattuša ve diğer Hitit merkezlerinin bize gelecekte daha çok sürprizlerle dolu arkeolojik ve epigrafik buluntular vereceğini bir kez daha kanıtlamaktadır.

Anahtar Kelimeler: Bronz kılıç, Akkadça yazıt, II. Tuthaliya, II. Bin, Hititler, Boğazköy-Ḫattuša, Orta Anadolu.

The sword

In 1990 preliminary work on the road to İbikçam was completed.¹ The work was carried out as a part of the

project to divert the field and village roads from the city area of Boğazköy-Ḫattuša, the capital of the Hittite Empire. On the 28th of August 1991, during the repair work on the

¹ This article was also published in the journal of *Müze / Museum* by the Turkish Ministry of Culture and Tourism. Ünal, Ertekin and Ediz

1990–1991, pp. 46–52. Other primary publication of this object: Ertekin and Ediz 1993, pp. 719–25; and also Ünal 1993, pp. 727–30.

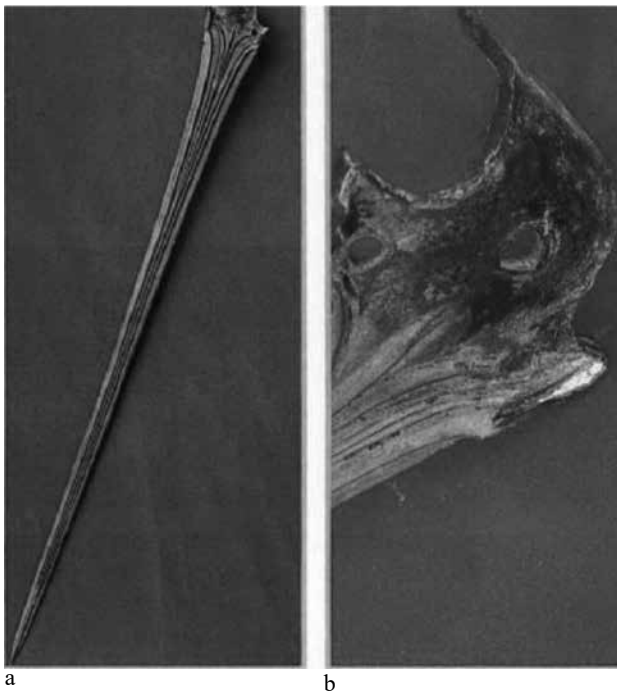


Figure 2.1a-b. The Hittite sword from the 1991 season at Boğazköy-Ḫattuša; Museum of Çorum (by İ. Ediz, 2011).

road which runs south from the steep slopes on the west side of Ḫattuša, an inscribed bronze sword was unearthed (figs. 2.1-2) and submitted to the Museum of Boğazköy by the grader operators of *Çorum Köy Hizmetleri*. From there it was transferred to the Museum of Çorum. The sword was thus not found during the systematic excavations carried out in Boğazköy and within the territory of the ancient site.

The sword was found *ca.* 750 m. southwest of the monumental gateway, in an area called locally 'Eski Örenyeri Mevkii' at a depth of 0.10 m. The cross – section of the shoulder of the road demonstrates that the field, which is now under cultivation, is composed of natural layers, and does not contain any architectural and cultural remains. Although evidence of sherds on the surface might suggest that the area was inhabited during the Hittite period, it is clear that the sword was not found *in situ*.²

The sword is made of hard bronze and cast in a mould. Surface traces show that the tang and the guard of the hilt were made by the technique of hammering. Rough edges around the rivet holes show that they were punched through.

The sword weighs 680 g and is 79 cm long. The length of the blade, beginning from the guard of the hilt, is 73 cm and the rectangular fang is 6 cm. The width of the blade at the guard is 7.5 cm whereas the thickness of the blade at the same point is 1.1 cm. At the tip the thickness becomes 0.6 cm. Two holes in the hilt and two in the tang enabled the attachment of the blade to the handle.

² For new suggestions of the identification and origin of the sword in question as Aegean Type B have already been raised: Taracha 2003, pp. 367–70. And also Hansen 1994, pp. 213–15; Cline 1995, pp. 266 and 270–73; Cline 1996, pp. 138–40.

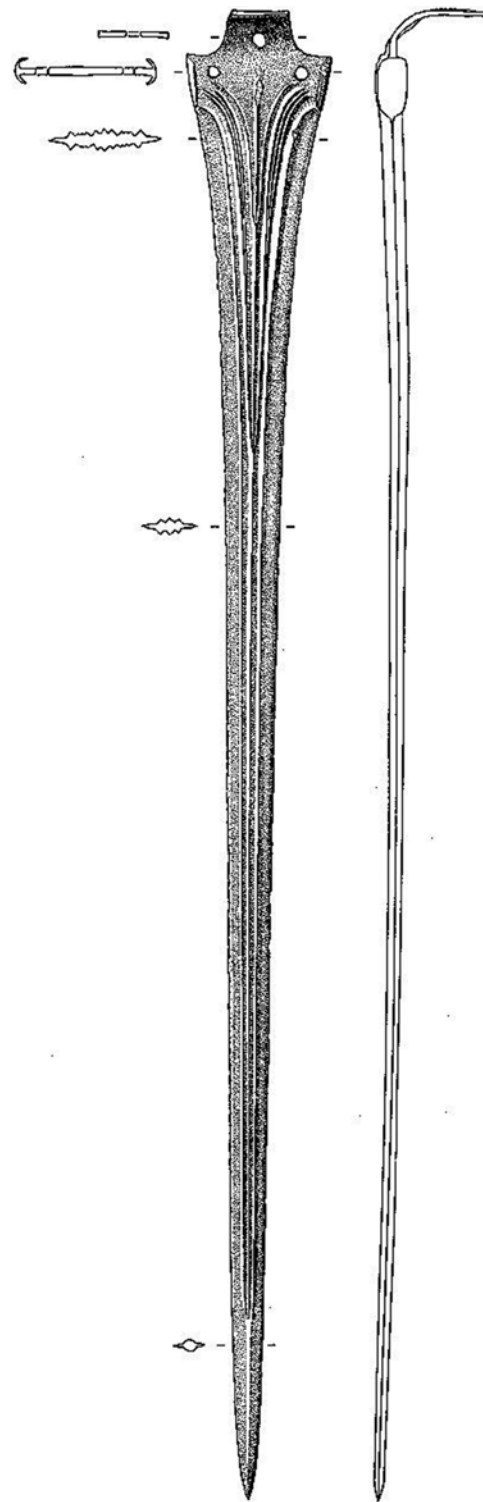


Figure 2.2. Its drawing (by İ. Ediz, 2011).

The blade, which is widest at the guard of the hilt, tapers towards the end where it is round in section and sharply pointed. The blade thins towards the sides, forming two sharp edges. At 9.0 cm from the point, the spine becomes raised. Two side ribs run parallel to the two cutting edges, and finish at the guard of the hilt. The central spine, 44.5 cm long, is thicker than the ribs to either side. Between the spine and the ribs, there are two grooves for blood. Two subsidiary ribs branch off from the central spine at a point 44.5 cm from the guard and open like a fan towards the



Figure 2.3. Akkadian inscription on the sword from Boğazköy (by İ. Ediz, 2011).

hilt. Above these, there are three thinner ribs that form two more grooves for blood. From the top of the central spine, two more ribs flare outwards to the guard of the hilt with further subsidiary ribs between them.

The two sides of the sword are completely symmetrical in technique, decoration, and the dimensions of the spines and ribs (excluding the inscription). The edges of the guard of the hilt were wide and bent backwards towards handle. Unfortunately, the material of the handle is missing. However, as it is a votive object, and because there are some small surviving fragments, we presume that the handle was made from bone or ivory.

The inscription

The greatest significance of the sword is to be attached to the unique inscription which has survived on the blade (fig. 2.3). The inscription, which constitutes a single line, is 16.5 cm long and 0.6 cm high. It was cut on the blade of the sword with a pointed metal chisel using the same technique as on the bronze tablet from Boğazköy.³ As a result, the important differences between cuneiform signs on clay tablets and on metal tablets or other artefacts are also found in the inscription of the sword. At first, the horizontal, vertical and corner hooks are side by side and consequently the nail heads are less pronounced.⁴ The script and the language are Akkadian. The sword was dedicated to the Storm God after the victory of Tudhaliya II (ca. 1.430 BC.) over Aššuwaland. In addition to the well-known dagger of Anitta,⁵ there are further archaeological objects which can be compared with the sword and its inscription. For example, a sword with votive inscriptions from the period of the Assyrian trade colonies was recovered in the Diyarbakır region.⁶ A 42 cm long sword or spear tip, of the same shape as the Boğazköy sword and approximately half its length, was transferred to the Archaeological Museum of Kastamonu in autumn 1992.⁷ Other similar types are known from the Aegean/Mycenaean area, Egypt, and the eastern Mediterranean coast. In a relief on an ivory plate from Ugarit, the sword that the Ugarit king holds in his left hand to decapitate a prisoner is similar to this sword.⁸ The transliteration and translation of the Akkadian inscription are as follows:

I-NU-MA^m DU-UT-ḪA-LI-YA LUGAL.GAL KUR
URU A-AŠ-ŠU-WA Ú-ḪĀL-LIQ GĪR^{HLA} AN-NU-TIM
A-NA^{PI} IŠKUR BE-LÍ-ŠU Ú-ŠE-LI

³ Ünal 1993, p. 727.

⁴ Ünal 1993, p. 727.

⁵ Özgüç 1956, pp. 29–36.

⁶ Güterbock 1965, pp. 197–98, pls. 13–15.

⁷ In September 1992, I would like to thank Mr Nureddin Çakır, the Director of the Museum of Kastamonu, who was kind enough to show me this artefact.

⁸ Schaeffer 1956, p. 276, fig. 239.

‘As Duthaliya the Great King shattered the Aš-šu-wa-Country he dedicated these swords to the Storm-God, his Lord.’

Some cuneiform signs show the characteristics of the Middle Hittite period, except for DU, LI, TIM.⁹ Fortunately, there is adequate evidence for the date of the sword and for the broad, historical context of the inscription. First of all, some of the cuneiform signs clearly show Middle Hittite forms. The writing of the name Duthaliya with *media* D, instead of the later form Tudhaliya II with *tenuis* T, suggests the earlier of the Tudhaliya IIs, Tudhaliya II (second half of the 15th century BC.) rather than Tudhaliya IV (1.245–1.220 BC.).

The main evidence for the date of the sword and the inscription comes from Hittite texts, which luckily can connect the historical information contained in the inscription on the destruction of the Aššuwaland with a group of texts, long known as the Annals of Tudhaliya II (KUB 23 no. 11; CTH 142) and redated after fierce dispute among Hittitologists.¹⁰ According to these texts the equivalent term for ḫulluqu ‘to make disappear, cause a loss’ (D-form of ḫalāqu ‘disappear, vanquish’) is ḫarnink – ‘to destroy’ while šulū (Š-form of ḫlū, 3. sg. pret.) might be the Akkadian translation of Hittite appa(n) tarna –, or less probably (šara) tittanu –.¹¹ In Hittite history, Tudhaliya II has a deserved reputation as a tough warrior and conqueror of western Anatolia, and as an ardent defender of the Empire’s territories and dependencies against the Arzawans, the Kaskeans, and the Hurrians. In fact, he is the king who laid the cornerstones of the Hittite New Empire which flourished under Suppiluliuma I. As such he was often celebrated by his namesake, Tudhaliya IV, who probably erected a stele in Ḫattuša in his honour.

In the annals of Tudhaliya II it is recounted that upon the death of his father, the lands of Arzawa (*i.e.* western Anatolia) gathered a huge alliance and attacked Hittite territories.¹² Tudhaliya II was able to respond to these Arzawan hostilities only after his own ascent to the throne. Furthermore, he reports that on his return to the capital city, Ḫattuša, these western Anatolian enemies renewed hostilities against the Hittite Kingdom, led by Kukkuli, the king of a country called Aššuwaland.¹³ Tudhaliya II reacted immediately, and by night marches and with the divine assistance of his patron deities such as the Sun goddess of Arinna, the Storm-God, Tutelary Deity (LAMMA), ZABABA, IŠTAR and Lelwani he vanquished his

⁹ Rüter 1972, p. 1 ff; and also Neu and Rüter 1975, pp. 5, 12, and 15.

¹⁰ Laroche, CTH 142.

¹¹ For detailed explanation: Ünal 1993, p. 729.

¹² Ünal 1993, p. 729. KUB 23.27.

¹³ KUB 23.11 ü I ff.

enemies.¹⁴ This is indeed the victory to which the inscription on the sword refers. As recorded in the annals, he mentions the Storm God in second place. With the possibility of future discoveries of similar archaeological objects, it is important to note that the Sun Goddess of Arinna and the other deities mentioned may have received similar offerings. Since the Hittite king states on the inscription of the sword that he has dedicated more than one sword (note the expression ‘these swords’) to his patron deity, we may expect to discover similar swords in the near future in and around Hattuša, perhaps even in the as -yet- undiscovered temple of the Storm God.

The marauding and victorious king transported from Aššuwa 10.000 captive soldiers and 600 charioteers as booty. The Aššuwian king Kukkuli was also among the prisoners – of – war carried off to Hattuša. It is possible that the swords which the king consequently dedicated without hesitation to the Storm God were among the spoils brought from western Anatolia; if so, he may have added only the dedicatory inscription. It is well known that as early as Hattusili I (1650, *cf.* KBo 10.2 i 10 ff. and KUB 24.3 ii 44 ff.) Hittite kings were accustomed to dedicating their booty to protective deities as an expression of gratitude for divine assistance.

Tudhaliya II reinstated Kukkuli subsequently as a vassal king in the land of Aššuwa, after swearing him to an oath of allegiance. Some time later Kukkuli rebelled and attempted to liberate his lands from Hittite subjugation. This attempt, however, was severely punished by local agents of the Hittite king and he himself was cruelly put to death.

Aššuwa’s exact geographical position within western Anatolian is still a moot point in Hittite historical geography. It may be located somewhere in the Troad, *i.e.* in the Çanakkale and Balıkesir provinces.¹⁵ Some scholars believe that the geographical designation Asia may be derived from this place name.¹⁶

As a cut – and – thrust weapon the sword is evidently important as the basic weapon of the Hittite army. With a sword, one kills one’s enemy (*cf.* IŠTU GÍR PN arha huišnu – ‘to save someone from one’s sword’ and GÍR – an takš – ‘to draw a dagger or sword against someone’). This special significance led the Hittites to worship the sword as an eschatological deity, who is represented in Gallery B of the Hittite open – air sanctuary at Yazılıkaya.

The Hittite word for sword is unknown; the texts use GÍR.GAL (Sumerian; Akkadian NAMŞĀRU). GÍR alone means knife (often written GÍR.TUR) or dagger. The word for a blade is EME.GÍR. There are no clear statements in the Hittite texts on the weight of swords. We may note,

however, 5 GÍN (*ca.* 40 g)¹⁷ and 10 GÍN (*ca.* 80 g)¹⁸ are the weight of a GÍR.URUDU ‘bronze sword, dagger or knife’.

The sword briefly discussed here shows once more that Boğazköy-Hattuša and other Hittite sites will continue in the future to endow us with startling new archaeological and epigraphical discoveries.

¹⁴ KUB 23.11 ü 13 ff and also KUB 13.9+KUB 40.62. i 1 ff.

¹⁵ Del Monte and Tischler 1978, p. 52 ff.

¹⁶ Ünal 1993, p. 730; Bossert, 1946; and *passim*; Georgacas 1969, pp. 1–90; Georgacas 1971; del Monte and Tischler 1978.

¹⁷ KUB 2.2 iv 8.

¹⁸ KUB 28.87 obv. 3.

A Hittite-Mycenaean Type B-Sword from the Vicinity of Kastamonu (Northwestern Turkey)

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Abstract: The subject of this article is a bronze sword found between a group of works in the Kınık district of Kastamonu province in northwestern Anatolia. The sword was found in a cave, locally known as 'Buz Mağarası' (literally 'Ice-Cave'), which lies in a steep canyon in a mountainous region in the district township of Pınarbaşı northwest of Kastamonu. It is cast in all probability using a cire-perdue technique in a mould, with blade and hilt as one piece. The blade of the sword was attached to the handle by means of a rectangular tang and a flange, which was created by bending backwards the square-shaped edges of the guard on both sides and thus making two hollows into which the handle was inserted. Possibly it was carried away as booty by Kaskaean raiders, which are described frequently in the prayers of the Middle Hittite royal couple Arnuwanda I and Ašmunikal. This sword is classified as Mycenaean Type B. It is highly probable that the swords of Mycenaean type B were manufactured by the Hittites. From all this, it is evident that the discovery of a Type B sword in an otherwise poorly known region east of the Aegean is critical, since it leads us to further discussions about the relationship between Anatolia and the Aegean. Future discoveries will certainly clarify more precisely the yet debated relationship of the Anatolian swords to their Aegean prototypes. As the number of these swords found in Anatolia increases, so does the probability that swords of Mycenaean type B were manufactured by the Hittites.

Keywords: Bronze sword, Mycenaean type B swords, second millennium BC., Hittites, Kastamonu, northwestern Anatolia.

Özet – Kastamonu Civarında bir Hitit Myken B Tipi Kılıcı: Kuzeybatı Anadolu'da yer alan Kastamonu İli'nin Kınık İlçesi'nden ele geçen bir grup eser arasındaki bronz kılıç, bu makalenin konusunu teşkil etmektedir. Kılıç, Kastamonu'nun kuzeybatısındaki Pınarbaşı İlçesi'ne bağlı dağlık bir bölgede, sarp bir kanyonda yerel halk tarafından Buz Mağarası (Buz Mağarası) olarak adlandırılan bir mağarada bulunmuştur. Her olasılıkta, bıçak ve kabza birlikte bir kalıp içinde cire-perdue tekniği kullanılarak tek parça olarak dökülür. Kılıcın bıçağı, tutamağın kare şeklindeki kenarlarını her iki tarafta geriye doğru bükerek ve böylece sapın sokulduğu iki oyuk oluşturarak meydana gelmiş dikdörtgen bir tang ve bir flanş vasıtasıyla sapa tutturulmuştur. Kılıç olasılıkla Orta Hitit kraliyet ailesi I. Arnuwanda ve Ašmunikal'in dualarında sık sık anlatılan Kaşka baskınlarında ganimet olarak taşınmıştır. Bu kılıç Myken Tip B olarak sınıflandırılmıştır. Muhtemelen Myken tip B kılıçlarının Hititler tarafından üretilme olasılığı yüksektir. Bütün bunlardan B tipi kılıcın keşfinin Ege'nin doğusunda az bilinen bölge için çok kritik olduğu açıktır ki burası, Anadolu ve Ege arasındaki ilişki hakkında bizleri daha fazla tartışmaya götürmektedir. Gelecekteki keşifler, Anadolu kılıçlarının ve onların Ege prototipleri arasındaki tartışılan ilişkileri kesinlikle daha net açıklığa kavuşturacaktır. Anadolu'da bulunan bu kılıçların sayısı arttıkça, Myken B tipi kılıçlarının Hititler tarafından üretilme olasılığı da artmaktadır.

Anahtar Kelimeler: Bronz kılıç, Myken tip B kılıçları, İ.Ö. 2. Bin, Hititler, Kastamonu, Kuzeybatı Anadolu.

Until recently the region around Kastamonu, lying south of the Black Sea in northwestern Turkey and known as Paphlagonia in ancient times, was a dormant area on the map of the Anatolian Bronze Age Archaeology,¹ but a few years ago it began to enter into the full light of archaeological study with the surprising discovery of a hoard of highly valuable and so far unique new archaeological material, dating from the Middle Bronze Age. The material includes an assemblage of unrivaled silver vessels, mugs, bowls, *rhyta*, statuettes and other objects found near the district town of Kınık, which seem to be part of a once tremendously rich collection, the remnants of which were fortuitously left behind by illicit antiquity hunters. The study and analysis of the artefacts, in one case one of the bowls engraved with a Hittite hieroglyphic inscription and dedicated to a deity,² give unquestionable evidence for dating these objects to the Hittite period. In particular one bowl, decorated with minute and elaborate 'bucolic' scenes, shows irrefutably clear features of Hittite art, of hunting scenes in registres, wild animal life, (represented often in combat and copulatory scenes and including stags, bulls, lions griffins, boars, ibex) and plants.³

Regardless of the barren appearance of the region, subsequent excavations carried out at the findspot showed that the researchers were not this time deceived by the shrewd tricks of antiquities dealers, as the area actually revealed clear evidence of intensive settlement during the Middle Bronze Age. Furthermore, the excavator Professor Aykut Çınaroğlu discovered, what at first sight seems to be a subterranean city,⁴ the first of its kind from the Hittite period. More surprisingly, in the late summer of 1996 during the Third Hittitological Congress in Çorum, General Director of Antiquities Mr Mehmet Akif Işık announced the discovery of smelting furnaces at Kınık, which – if the identification and dating are correct – are the their of its kind in Hittite archaeology. All his suffices to prove the region to be rich in mineral resources and advanced in the metallurgical industries during the Middle Bronze Age in Anatolia. Until now opulent mining resources have been encountered by means of archaeometallurgical studies in central and northern Anatolia around the Pontic Mountains and in the south in the Taurus and Amanus ranges.⁵ In the

light of the new findings, Paphlagonia deserves also to be subject of detailed metallurgical investigations.

Scholars dealing with ancient Anatolian geography, more precisely with Hittite historical geography, have for a long time tentatively located in Paphlagonia the Hittite province of Pala-Tumana,⁶ allegedly identical with Blaene Domanitis of Strabo,⁷ while Kastamonu itself is identified with Kastamonu of Hittite texts.⁸ The predominating mountain of the region is Ilgaz, ancient Olgassus, as Strabo also stresses in all probability, on the basis of phonetical similarity, it is identical with the mountain of Kassu and perhaps also with Haharwa in Hittite texts,⁹ the latter playing a major role during the Hittite military operations conducted in that region in the 13th century BC.¹⁰ The discovery of the hoard at Kınık, as well as the furnaces and now the sword from Pınarbaşı published here, are the first tangible archaeological proofs that Paphlagonia was settled during the Middle and Late Bronze Ages, and it also supports the region's identification with the Hittite province of Pala-Tumana.¹¹ Previously the region's general history of habitation, beginning with the Chalcolithic period, was known through archaeological surveys, and sites such as İmrentepe, Örenhöyük, Semercitepe, Taşköprü Yolu Höyük, Salman Höyük near Ilgaz, Taşkınaynar, Zincirli, Uluköy Çay, Maltepe, Tepecik, and Çengelli were recorded as a result.¹² Moreover, the new findings show clearly that the area during the Middle Bronze Age was not merely a heavily forested pastoral and agricultural region, as would seem at first sight, but also an important metallurgical manufacturing centre.

In the summer of 1992, when I was traveling from Sinop to Ankara, during my stopover at Kastamonu, the director of the local museum, kindly showed me a sword which he and his staff members thought was a spearhead. However, its similarity with the only sword yet discovered in 1991 in the vicinity of the Hittite capital Boğazköy-Ḫattuša, central Turkey, published by us in the same year (fig. 3.1),¹³ was so conspicuous that we decided not

¹ Once again the Turkish General Directorate of National Monuments and Antiquities in Ankara deserves my sincere thanks for its kind permission to publish the sword. Mr Nurettin Çakır, the director of the Archaeological Museum of Kastamonu, and his staff members Ms Meral Güngördü and Mr Yavuz Ortaakarsu supplied me with a rough drawing and pictures of the sword. Would I like to thank them for their highly appreciated cooperation. I would also like to express my sincere thanks to Professor Michael Roaf, the University of Munich, for his kind help in improving the English of the manuscript and his valuable suggestions. With some exception of prehistoric finds such as Gököy etc.; see in general: Kökten 1948, pp. 223–26; and also Kökten 1951, pp. 201–14. Also cf. Ünal 1999.

² Hawkins 1993, pp. 715–17.

³ Primary publications given rapidly by Professor Aykut Çınaroğlu: Çınaroğlu 1990–1991, pp. 53–59; and also final publication is given by Emre and Çınaroğlu 1993, p. 675 ff, fig. 23; cf. Ünal 1974, p. 216 with note 75.

⁴ Professor Çınaroğlu's personal query as to the eventual textual indications in Hittite corpus to the 'cave settlements' or 'dwellers' can unfortunately not be answered.

⁵ Yener 1995, p. 101.

⁶ The basic study is undertaken by H. Ertem in his exhaustive work: Ertem 1980, pp. 13 and 18; cf. also Forlanini 1977, p. 197 ff; Forlanini and Marazzi 1986; and also Marek 1993, p. 11.

⁷ Strabo 12.3.40: 'M. Olgassus is extremely hard to travel. And temples that have been established everywhere on this mountain are held by Paphlagonians. And round it lies fairly good territory, both Blaene and Domanitis. Through which latter flows the Amnias River'; Amnias is the modern Gökırmak.

⁸ Thus Sedat Erkut in a forthcoming study.

⁹ Robert 1963, p. 450; Ünal 1974, p. 187; Ünal, Kaššu. in: RIA s.v.; Ünal 1998, p. 35 ff.

¹⁰ See first of all the divination text KUB 5.1; Ünal 1974, pp. 129 ff and 187; and also Ünal 1974, pp. 32–102.

¹¹ On the evidence of Hittite 'glass' findings see now Erten Yağcı 1998, pp. 29–44.

¹² See notably Burney 1956, pp. 179 ff, 181 and 192; and also Donceel-Voüte 1979, pp. 196–97; for later periods see Marek 1993, pp. 8–13. For a general assessment of settlement patterns of the region: Ünal 1989, pp. 17–33. After this manuscript went to press far more settlements have been encountered in the region by a Turco-French survey team: Kuzucuoğlu *et al.* 1996, pp. 273–90. Marro, Özdoğan and Tibet 1997, pp. 275–306; Marro, Özdoğan and Tibet 1998, pp. 317–35; Özdoğan *et al.* 1997, pp. 303–30.

¹³ This important sword, the first example of its kind not only from central Anatolia but also from entire eastern Mediterranean, accidentally

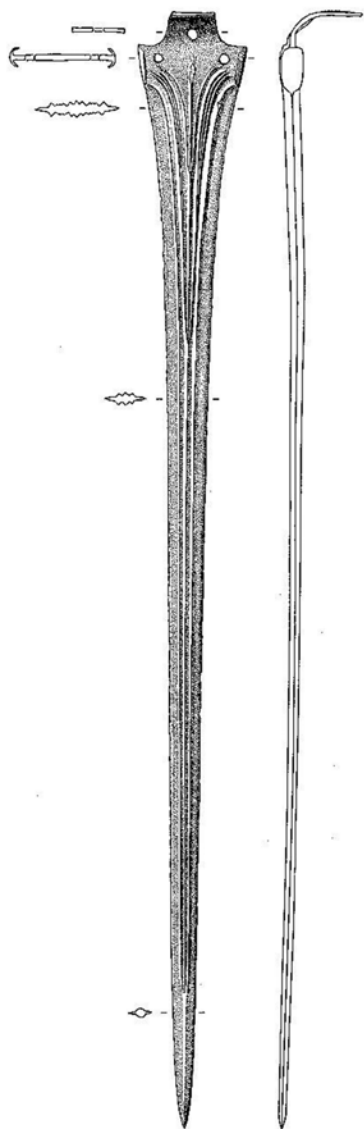


Figure 3.1. The Hittite sword from the 1991 season at Boğazköy-Hattuša; Museum of Çorum (by İ. Ediz, 2011).

to describe it anymore as a ‘spearhead, dagger’, or ‘machette’, but, in spite of its small size (only 41.8 cm h.) in comparison to the Boğazköy sword, which is almost twice the length (79 cm), to call it a dirk or a short sword (figs. 3.2-4).

The sword was found in a cave, locally known as Buz Mağarası (‘Ice-Cave’), which lies in a steep canyon, in a mountainous region in the district township of Pınarbaşı north-west of Kastamonu. The cave is extremely difficult to reach. This region, especially the part within the

triangle between Cide, Azdavay, and Pınarbaşı, is heavily forested and contains many such caves, which are found as far as the vicinity of Zonguldak as well as tectonic holes, canyons and lairs in which bears still make their natural habitat.¹⁴ The region’s most remarkable canyons lie around Amasra, Sümenler, Ilgarin, and Pınarbaşı (Buz Mağarası). Buz Mağarası, the findspot of the sword, derives its name from the huge masses of ice inside the cave which form grotesque deposits, predominantly made of stalactites and stalagmites. Hard though it may be to believe, it is claimed that the sword, embedded in ice and icicles, was found inside the ‘Ice Cave’ by a group of British speleologists; it was then handed over to the local gendarmerie commandant, and thus fortunately and safely found its way to the local museum at Kastamonu where it has been given the acc. no. of 983.

In regard to the findspot, many questions arise. First of all, how does it happen that this sword came to such a remote and ‘non-historical’ locality? In responding to this question we have an *embarrass de choix*. Possibly it was carried away as booty by Kaskaean raiders, which are described frequently in the prayers of the Middle Hittite royal couple Arnuwanda I and Ašmunikal.¹⁵ The Boğazköy sword had a similar fate, since it was also among the plundered swords, which were brought away by Tudhaliya II from his Aššuwa expedition, supplied with a dedicatory inscription and presented to his patron deity the Storm-God.¹⁶ It is also possible that it was dedicated to a divinity, and deposited in a temple in the area around Pınarbaşı. Nevertheless, stories concerning the exact discovery spots of stray findings are frequently deceptive, and a caveat is always in order, and this caveat is also valid – at least to me! – in the case of both the Kastamonu and the Boğazköy swords.

The pristine state of preservation of the sword – as is also true in the case of the Boğazköy sword is very striking, especially when we compare it with the swords from the Aegean and elsewhere. The good preservation is certainly due to the material it is made of; since, like the Boğazköy sword, the percentage of tin in the alloy must be exceedingly high,¹⁷ the bronze is obviously harder than other common (*i.e.* non-military) artefacts; in addition to the hardness is, of course, due to the final annealing; moreover, we must keep always in mind that here we are dealing with an attack weapon which was to be used on the battle-field. It is cast in all probability using a *cire-perdue* technique in a mould together with blade and hilt as one piece; the hilt and tang may have been given their final shapes by means of hot forging, similar to the Boğazköy sword.

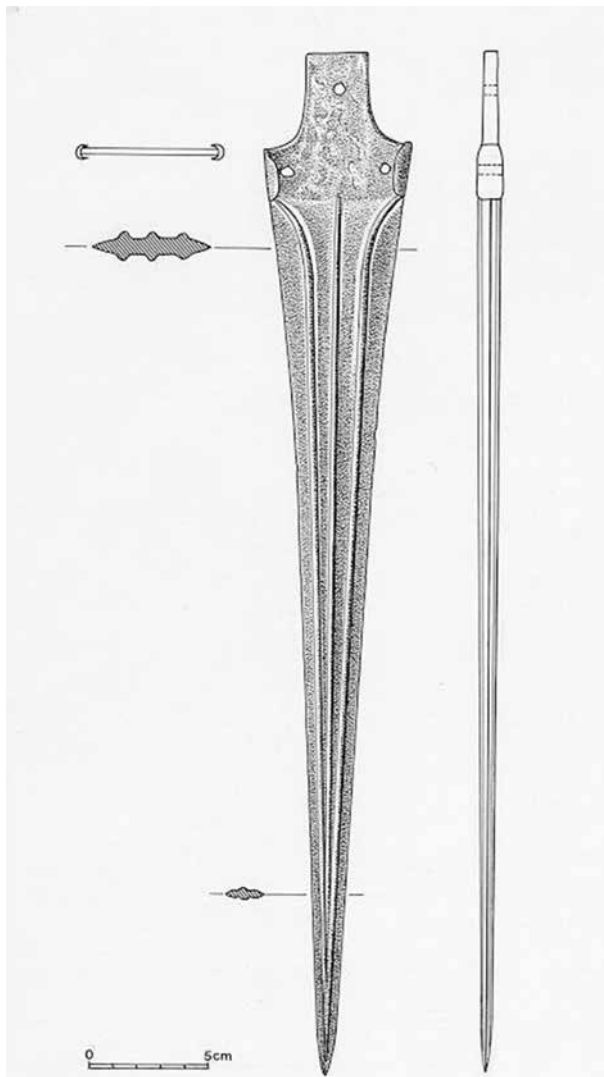
found outside of Boğazköy-Hattuša’s Lion Gate in 1991 has been promptly published by Ünal, Ertekin and Ediz 1992, pp. 46–49 (Turkish) and 50–52 (English): a list of further treatments alongside some criticism and further recently discovered dedicatory material comparable with the sword can be found in Ünal 1996, p. 59, note 165; Ünal 1993, pp. 727–30; Ertekin and Ediz 1993, pp. 719–25; Buchholz 1994, p. 20 ff; Hansen 1994, pp. 213–15; Mellink 1993, pp. 106 and 112 ff; Neve 1993, p. 648 ff; Salvini and Vagnetti 1994, pp. 215–36; Ünal 1992, pp. 256–57; Drews 1993, p. 197 ff.; Müller-Karpe 1994, p. 434 ff; Piller 1995, p. 103ff with fig. 271; Cline 1994, p. 73; Cline 1995, pp. 266 and 270 ff; Cline 1996, pp. 137–51.

¹⁴ Cf. the report of the Turkish monthly magazine *Atlas*: Ayıoğlu ve Kurtgirmeç 1995, p. 48 ff.

¹⁵ KUB 17.21 + and its parallels, CTH 375; von Schuler 1995, p. 152 ff; and also Ünal 1991, p. 799 ff.

¹⁶ Thus already in my edition princeps. Ünal, Ertekin and Ediz 1992, pp. 46–49.

¹⁷ Both swords are unfortunately not analysed.



3.2



3.3

Figures 3.2-3. A Hittite-Mycenaean type B-sword from the vicinity of Kastamonu (by A. Ünal, 2011).

The Kastamonu sword (figs. 3.2-3) weighs 298 g. and is 41.8 cm long; the length of the hilt is 5.8 cm; the shoulders measure 2.0 cm long and 0.5 cm wide: the blade is 36 cm long, and thus it is much shorter than the Boğazköy sword (79 cm) and other B Type swords from the Aegean world which are in some cases longer than one meter. Its broadest w. on the shoulder is 6.3 cm, the w. of blade is 5.7 cm and the point is 0.5 cm thick.

The blade of the sword was attached to the handle by means of a rectangular tang and a flange, which was created by bending backwards the square-shaped edges of the guard on both sides and thus making two hollows into which the handle was inserted.¹⁸ A total of three rivet holes, two near the blade and one in the middle of the hilt, secured the blade to the handle (fig. 3.3). The rivets, whatever material they originally may have been made of, as well as the handle which certainly was made of a different material (see below), are missing; residues of

bone or ivory have been observed in the handle holes of the Boğazköy sword.¹⁹

Like the Boğazköy example, the Kastamonu sword, cast as a single piece, has the shape of a very elongated triangle; like most swords, it is widest at the tang and the blade tapers towards the point, which is slightly round in section and sharply pointed like the Boğazköy sword. The raised middle spine or ridge which has a w. of 1.0–0.7 cm, runs from immediately below the point of the blade towards the handle and separates the blade into two symmetrical sections. This wide central rib with a round section serves to strengthen the blade and is at the same time another proof for its active use as an active combat weapon. The blade, notwithstanding the distinctively raised ribs with a roughly rhomboid cross section, gets thinner towards the sides, forming two cutting edges which are even today extremely sharp. The elaborate overall symmetry can be observed with ease from beginning to end on both sides.

¹⁸ On hafting techniques see Weinstein 1981, p. 48 ff.

¹⁹ Ünal, Ertekin and Ediz 1992, p. 52.



Figure 3.4. A sword depiction on the King's Gate at Boğazköy-Ḫattuša (by E. Lafli, 2011).

The two side ribs, each 0.7–0.5 cm wide, are raised as high as the central one,²⁰ and start from the upper corners of the blade. The central and side ribs join 5.0 cm from the point of the blade, with space for two blood grooves between them (figs. 3.2-3).

As mentioned the handle was not preserved and there are no remnants of it. Although no indications are at hand as to the shape and material of the missing pommel, we can reconstruct it as being shaped like a crescent, which is the most prominent and preeminent type among the swords and daggers depicted on archaeological monuments, such as at Yazılıkaya,²¹ Boğazköy, Alaca Höyük, Gâvur Kalesi, Karabel, Sirkeli, Hemite, Akçaköy, Imamkulu, Fıraktin, Gezbeli etc.²² As a very typical example, I would like to mention the pommel of the sword on the belt of the warrior god at Boğazköy's King Gate (fig. 3.4).²³ On the impression of a royal seal of King Urḫi-Tešub, both the

Storm God Tešub and a warrior standing behind him both carry swords with crescent-shaped pommels.²⁴ On all these monuments we see both human beings and gods equipped with crescent-pommelled swords. Such a sword, hung from the left side, appears also as part of the depiction of a deity, on the fist-shaped metal vessel in the Boston Museum of Fine Arts.²⁵ Another clear example is given on Yazılıkaya relief no. 81 in the Gallery B where Tudhaliya II IV is embraced by his protective god Šarruma; here both god and king have the same type of swords stuck in their belts.²⁶ Unfortunately, all these illustrations are not detailed enough to allow one to decide, whether other features such as blades, guards, etc. are similar to the ones found in Hittite sites and in the Aegean or not. Strikingly similar crescent-pommels are preserved from the Levant and Mesopotamia; however, they date from the Iron Age.²⁷

²⁰ Seen clearly in the cross-section of the drawing.

²¹ Drawings of crescentic pommels from the reliefs nos. 30, 40–42, 44, 64, and 81 are illustrated in Bittel *et al.* 1975, pp. 301–11, pl. 65.

²² Ünal 1994, p. 212 with n. 35–37; *cf.* also Kohlmeyer 1983, p. 83, figs. 33, 36, and 39 and Beal 1986, pp. 644–51.

²³ Bittel 1976, p.173 ff, fig. 268; N. that not all the points of swords are crooked as here and on some other monuments; since the scimitars are

not attested elsewhere, the crook may be caused by the leather or wool sheath.

²⁴ The *bullā* was first illustrated on the cover of P. Neve's booklet: Neve 1992; it is now treated in full by Güterbock 1993, pp. 113–16.

²⁵ Güterbock and Kendal 1995, p. 47.

²⁶ Bittel *et al.* 1975, pl. 7 and 62, no. 81.

²⁷ Listed by Piller 1995, p. 91 ff, fig. 231 ff under the typology of 26B.

The cuneiform texts give additional support that the swords were carried by human beings and some deities. For example, according to a Hittite ritual of ascending to the throne, the king is handed a sword as royal *insignia*.²⁸ It is said of the Tutelary Deity of the city of Wiyanauwanta that his golden image stands on a golden stag, holding a golden bow in his right hand, a golden eagle and hare in his left hand. The text goes on saying that a golden sword and some ornaments in the shape of fruits are attached to the image of the god.²⁹ We may conceive the sword here exactly like the ones depicted on the above-mentioned archaeological monuments. Moreover, this description of the image corresponds almost exactly to the steatite stag plaque from Yeniköy near Alacahöyük³⁰ of a god who holds an eagle or falcon in his right hand, while a staff leans on his left shoulder. A closer examination reveals that the sword is stuck into his belt. Although the presence of the eagle and hare stress the hunting aspect of the deity³¹ they also remind us of the double eagle as heraldic depictions, clutching hares with their claws, carved in the inside of the right hand sphinx at the city gate of Alacahöyük.³² Other texts speak of '(Innarawant-) deities who are girt with a sword(s),³³ a god carrying a sword,³⁴ 'two swords which have been produced for the 'New Deity',³⁵ and 'sword/dagger belonging to the god'.³⁶ The fashion of swords with crescent pommels continues during the Late Hittite period; thus we see the swords with the same pommels on stone monuments at the following sites: Arslantaş, Babylon, İslahiye, Karasu (?), Kargamiş, Körkün, Malatya, Pancarlı, Sakçagözü, Til Barsib and Zincirli.³⁷

Such pommels are also known from the excavations in the Amik plain³⁸ and Beisan in Palestine.³⁹ The only archaeological examples come from a hoard, allegedly discovered in the 19th century at Soloi-Pompeopolis (modern Viranşehir, in the western suburbs of Mersin) and smuggled out of the country, and they reveal a striking resemblance to those crescent-shaped pommels on the Hittite rock monuments. Our new interpretation implies, however, that the designation of these objects as 'halberd axes' (*Hellebardenuxte*) by Kurt Bittel⁴⁰ has to be treated with caution. Halberds, which are mainly typically European weapons, are scarce in the

Aegean and Near Eastern archaeology.⁴¹ Swords from Syria, Palestine, Ugarit, and Egypt look quite different from the Aegean and Anatolian types;⁴² often they have round, mushroom-shaped pommels [*pilzförmige* or (*halb*)-*kugelförmige Knäufel*],⁴³ and their distribution in Anatolia is not as extended as the Aegean swords. Some examples, *i.e.* what has been preserved of their pommels or tangs, have been found at Hattuša and as far west as Şarköy near Eriklice.⁴⁴ In this context, it may be noted that a sword with a round pommel is carried by the possibly Mycenaean warrior in full battle array, complete with helmet and an exceedingly long pigtail, which was incised on a Hittite bowl, found in a late 15th/early 14th century BC. context at Hattuša.⁴⁵ Round pommels have been discovered in the excavations of Boğazköy, Alişar, and Beycesultan; they are made of bone, alabaster, rock crystal and marble.⁴⁶

The sword as a cut – and – thrust as well as a defense and attack weapon had a special place and importance in the warfare of antiquity. Among the limited number of other categories of conventional weapons such as arrows, daggers, maces, and axes⁴⁷ it was surpassed in efficiency only by the spear, which was the most effective and lethal of all arms used in battle.⁴⁸ It seems that the Hittite swords were not only used to stab but also to decapitate human beings; this is evident from the description of the warrior god Şulinkatte⁴⁹ who holds in his right hand a sword made of silver and in his left a human head.⁵⁰ According to another text, the sword appears again as a life-threatening weapon: 'The father of his majesty rescued Madduwatta's life from the sword of Attarşiya'.⁵¹ Therefore, it is no wonder that Minoan swords and daggers come mostly from warrior graves.⁵² The introduction of long swords was the result of highly developed and improved metallurgical techniques, advances and needs of military strategies, and thus an overall change in warfare during the mid-second millennium BC.

It has long been known that the source of the long swords was the Aegean world.⁵³ The technology, however,

²⁸ KUB 11.31 obv. 11.

²⁹ KUB 38.1 ii 1 ff, *cf.* The remarks of Güterbock 1983, p. 203 ff and reprinted: Güterbock 1997, p. 118.

³⁰ Arik 1937, p. 241, fig. 36.

³¹ For details see von der Osten-Sacken 1988, p. 66 ff; McMahon 1991, p. 3 ff with n. 14.

³² Bittel *et al.* 1975, figs. 25, 26, 31, and 58.

³³ *Cf.* KUB 28.45 obv. i 15; HT 1 i 32.

³⁴ Literally 'put on' (waš-), AT 454 rev. iv 10 ff.

³⁵ KUB 29.4 iv 33.

³⁶ GİR ŞA DINGIR^{LM}, KUB 12.8 iii 18; *cf.* KUB 28.45 obv. i 15.

³⁷ Orthman 1971, figs. 4e, 5b, 14c, 14f., 27d; 38f., 40b, 41f, 48h, 50a, 53c, 57d, 57f., 58a, 58d, 59f, 60a, 62d (?).

³⁸ Wooley 1955, p. 276, pl. 70.

³⁹ Garstang 1929, p. 85 ff, pl. 19; *cf.* Philip 1989, fig. 26.

⁴⁰ Bittel 1940, p. 192, pl. 4, nos. S 3397 and 3398; *cf.* already Bittel 1934, p. 50ff: for the Iron Age Mesopotamian pommels preserved on the swords see above p. 213, with n. 24.

⁴¹ Dickinson 1994, p. 197, with reference to Branigan 1974, p. 17.

⁴² *Cf.* Philip 1989; and also Geiger 1993, p. 215 ff.

⁴³ *Cf.* the 13th or 12th century BC. sword from Emar-Meskene, in *Syrie. Memoire et civilisation: exhibition catalogue* (1994), p. 212, fig. 156.

⁴⁴ Geiger 1993, p. 216, pl. 4.

⁴⁵ Bittel 1976, pp. 9–14, figs. 1–3; Rittig 1983, p. 159, fig. 3; Neve 1984, p. 96, pl. 12b; Boehmer and Güterbock 1987, pp. 88–89, pl. 34.

⁴⁶ Boehmer 1972, p. 221 ff; Bittel 1976, p. 13, with n. 5.

⁴⁷ The following evocation to Istar of Ninive shows the importance of these weapons very clearly. KBo 2.9 + i 49 ff: 'Take away from the (hostile) people manhood, strength, skill(?) (*mal-*), weapons, arrows, sword(s) and conduct them to Hatti land!'

⁴⁸ Sandars 1963, p. 128; MacDonald 1984, p. 58.

⁴⁹ Identical with Mesopotamian U.GUR and Nergal: Darga 1978, pp. 145–63. She considers its identity with the famous relief of then warrior god at the King's Gate of Boğazköy.

⁵⁰ KUB 30.37 i 1 ff with dupl. KUB 12.36 + KUB 60.9. Koşak 1994, p. 288; for the earlier treatments of the text in archaeological context see Güterbock 1997, p. 120 with n. 46.

⁵¹ Madduwatta-Text obv. 10. *cf.* also line 14.

⁵² See MacDonald contribution: MacDonald 1984, p. 56 ff.

⁵³ *Cf.* Foltiny 1980, pp. 231–74; Muhly 1985, p. 109 ff; Driessen and MacDonald 1984, p. 49 ff.

may originally have come from the Mediterranean,⁵⁴ Mesopotamia, central Anatolia,⁵⁵ and finally Egypt,⁵⁶ all regions with an astonishingly long history of highly developed metallurgy, forging, and casting techniques.⁵⁷ Anatolia has a stronger potential to have been the transmitter of these swords, and therefore it was in all probability the homeland of swords at all from where they spread to Mesopotamia⁵⁸ and to the Aegean. From the Aegean region, the long swords found their way as far north as Albania⁵⁹ and Romania, where a sword made of gold⁶⁰ has been discovered in Perşinari.⁶¹ The sword had a particular importance in the Minoan and Mycenaean civilisations. Linear B tablets not only record considerable number of swords or daggers (totals of 50 and 99 are mentioned),⁶² but also possess a special sign for 'SWORD' with two distinctive variants.⁶³ The preeminence of the sword alongside the abundance of spears as sophisticated weapons has been taken as an indication of the belligerent nature of Mycenaean society.

The typology, development, and chronological sequence of Aegean swords were studied by Nancy Katharine Sandars some 35 years ago, and this study is standard even today.⁶⁴ In my first publication on the Boğazköy sword, I have suggested an Aegean/western Anatolian origin for the sword, on account of its historical connection with the Aššuwān military campaign of Tuḫaliya II.⁶⁵ In subsequent publications⁶⁶ and in further studies of the sword, its Aegean/Mycenaean origin has repeatedly and sometimes exaggeratedly been stressed, and it has been identified as what Karo and Sandars categorised as a Type B sword⁶⁷ with its characteristic flanges around the tang and shoulders. However, this identification is not 'cut – and – dried', as Cline says, because 'strenuous objections to such identification have already been raised'.⁶⁸ For instance, Ertekin and Ediz advocate an Anatolian/Hittite origin, claiming that the Boğazköy sword is different from Type B swords, because it has fewer rivet holes on the shoulder

and tang, its shoulders rest at a less acute angle, and finally it has deep grooves on the blade.⁶⁹ The Kastamonu sword supports their view and future discoveries will certainly clarify more precisely the relationship of the Anatolian swords to their Aegean prototypes. The Type B examples, including the sword from the Agora of Izmir and the Boğazköy, and Kastamonu swords, are dated to the LH II A1 period,⁷⁰ *i.e.* to the 15th century BC., exactly the period of the Middle Hittite kings Arnuwanda I and his successor Tuḫaliya II.

The number of Late Bronze Age swords discovered up to now east of the Aegean is strikingly small: three of Type B (from the Roman Agora of Izmir,⁷¹ Boğazköy, and Kastamonu), two of Type C (at Gezer in Israel⁷² and the Uluburun shipwreck⁷³), and two of Type D (from Panaztepe⁷⁴ and Uluburun⁷⁵). It has generally been thought that these were imported from the Greek mainland or from some other manufacturing centre in the Aegean region, such as Crete.⁷⁶ It may be noted that swords of Types C and D were more common than those of Type B in Crete and the Aegean.⁷⁷ Since, as already noted above, the number of Type B swords found in Anatolia has increased since 1991, one may now ask whether they were really all imported from the Aegean or whether there might have been a manufacturing centre somewhere in central Anatolia. In the face of our above conclusions that this type of sword was used extensively in Hittite military equipment, in cult and in ceremonial activities and was carried by men as well as by deities,⁷⁸ it is unlikely that all these pieces were imported from the Aegean production centres. Therefore we may assume that the Hittites with their well-acknowledged precocious metallurgical traditions and know-how, their weapon techniques and military organisation certainly had their production centres for swords and other weaponry somewhere in central and northern Anatolia.

Since at least the Uruk period, the Early Bronze Age and the period of the Old Assyrian trading colonies there has been a long tradition of manufacturing swords and daggers in Anatolia,⁷⁹ as the findings from Malatya-Arslantepe,⁸⁰ the Royal Tombs at Alaca Höyük,⁸¹ the Anitta dagger

⁵⁴ Sandars 1978, p. 90.

⁵⁵ See urgently what Sandars expresses in regard to swords from Royal Tombs at Alaca Höyük concerning their length as long as 0.82 cm and possible Syrian-Levantine ancestry of A and also B Type swords: Sandars 1961, pp. 18 ff, 21, and 24 ff.

⁵⁶ Cf. Sandars 1961, p. 18 with n. 8–9.

⁵⁷ For casting and melting techniques see Forbes 1997; Coghlan 1975, p. 143 ff, pl. 11 ff; Moorey 1985, p. 40 ff; Craddock and Huges 1985.

⁵⁸ Chr. Piller 1995, p. 109.

⁵⁹ See an example of a type sword from Iglarevo, h. 89.9 cm Kilian 1976, p. 113 ff.

⁶⁰ Hittite texts show that swords made of gold did exist. KUB 38.1 ii 5, see above p. 213 with n. 28 and KBo 18.176 i 7.

⁶¹ Kilian 1976, p. 116 ff with fig. 3.

⁶² Driessen and MacDonald 1984, p. 64.

⁶³ Palmer 1961, p. 180 ff.

⁶⁴ Sandars 1961, pp. 17–29; Sandars 1963, pp. 117–53; cf. For an overview Dickinson 1994, p. 202 ff, and figs. 5, nos. 4–6.

⁶⁵ Ünal, Ertekin and Ediz 1992, p. 52: 'It is possible that the swords which the king consequently dedicated... to the Storm-God were among the spoils brought from west Anatolia; if so, he may have added only the dedicatory inscription.'; See the repetition and confirmation of my result by Ertekin and Ediz 1993, p. 724 and other authors.

⁶⁶ Ünal 1993, p. 727 ff; Ertekin and Ediz 1993, p. 722.

⁶⁷ Karo 1930–1933, p. 204ff; Sandars 1961, p. 17 with n. 1, 22, 25, and 27; Sandars 1963, p. 117.

⁶⁸ Cline 1996, p. 138 with n. 11 ff.

⁶⁹ Ertekin and Ediz 1993, p. 722; the uniqueness of Boğazköy sword is also admitted by Piller 1995, p. 103, but he insists to attribute it to the Type B category.

⁷⁰ Mellink 1993, pp. 106 and 112 ff; Cline 1994, p. 73; Hansen 1994, p. 213 ff; MacDonald apud Cline I. c.; Salvini and Vagnetti 1994, p. 215 ff.

⁷¹ Bittel and Schneider 1943, p. 202 ff, fig. 3.

⁷² Type C II, 'horned' swords of Sandars 1963, p. 119 ff.

⁷³ Types C I and D I. Pulak 1988, p. 22 ff.

⁷⁴ Type D I. 'cruciform' swords of Sandars 1963, p. 119 ff; Erkanal 1986, p. 258; Ersoy 1988, p. 55 ff and pl. 5.

⁷⁵ Types C I and D I. Pulak 1988, p. 22 ff.

⁷⁶ Cf. Cline 1994, p. 139; on possible west Anatolian manufacturing workshops see p. 140, with n. 21.

⁷⁷ Salvini and Vagnetti 1994, p. 220 with n. 7 with further literature.

⁷⁸ See above p. 213 ff, with n. 27 ff and below p. 220.

⁷⁹ Cf. Przeworski 1939; Maxwell-Hyslop and Hodges 1964; Stronach 1957, p. 89 ff; Yener 1995, p. 101 ff.

⁸⁰ Palmieri 1981, p. 101 ff.

⁸¹ Koşay 1944, pp. 84 and 118 ff, pl. 81; Koşay 1951, p. 167. pl. 183; Erkanal 1977, p. 37 ff, pl. 13.34.

from a palace(?) at Kaneš-Kültepe,⁸² two short swords from Kültepe,⁸³ a 109 cm long sword from Diyarbakır,⁸⁴ a short Mycenaean sword from Firaktin,⁸⁵ a sword from the Archaeological Museum of Eskişehir,⁸⁶ a sword from Soloi-Pompeopolis,⁸⁷ from Horoztepe⁸⁸ a sword now kept in the Museum of Tokat,⁸⁹ another in the Museum of Gaziantep⁹⁰ daggers from the Sakçagözü region⁹¹ a sword from İzmir,⁹² Burdur, Bolu,⁹³ and a probably European type sword from Mumcular near Bodrum demonstrate clearly.⁹⁴ Therefore it is no wonder, that the earliest examples of swords in the entire Near East come from Anatolia, and date to the Uruk period and the Early Bronze Age.⁹⁵ This abundancy comes to a certain degree from Anatolia's particular position in metallurgy, because it has very rich metal resources which have been extensively exploited since its earliest history.⁹⁶ I would like to cite here Aslıhan Yener, a specialist in ancient Anatolian metallurgy: "Highland regions of Anatolia, rich in natural resources, were among the earliest places, where metallurgy developed. In this region, metallurgy advanced in the Near East and from here metallurgical technologies spread to neighboring Mesopotamia and Syria. Styles and traditions of metalworking exhibit great inventiveness here. The products of these techniques display a virtuosity that often outshines other aspects of technology as a whole".⁹⁷

Besides its use in combat, the ceremonial aspect of these swords needs also to be noted. As a matter of fact the Hittite rock monuments, reliefs, seal impressions, depictions on the cultic vase from İnandık and other plastic artworks show swords in ceremonies rather than in battle and the swords are carried as glamorous and prestigious weapons by men as well as by deities. This, of course, does not exclude the possibility that the same swords were employed in battle.⁹⁸

On the basis of the pristine condition of the metal, Sandars has reasonably observed that a particular group of swords was never intended for use in combat, but served as votive offerings or as funerary gifts in graves;⁹⁹ nevertheless, the suggestion that only the 'horned' Type C and G and 'cruciform' Type D swords and daggers were made for combat, while the Type A and B swords served

predominantly as prestige items indicating military rank,¹⁰⁰ because they lack guards, does not seem to be convincing to me.

The Hittite cuneiform texts, too, confirm the symbolic importance of swords in Anatolia and show that they were probably insignia of aristocracy; for example, the king Telipinu took the sword of a dignitary to degrade him to mere peasant status as a sort of penalty.¹⁰¹

Unfortunately, the Hittite texts tell us almost nothing about the origin and the role of the swords; the few records are often ambivalent since they do not distinguish sword, dagger, dirk or knife from each other.¹⁰² I have already collected the sparse information about their weight, size, material and usage which can be culled from the cuneiform texts in my publications of the Boğazköy sword.¹⁰³ Richard Henry Beal gives some further details which are valuable especially in regard to the designation of parts of the sword, such as GABA 'handle' and *lala(n)* – (EME) 'blade'.¹⁰⁴ TUG/GAD *lupanni*–/*luwanni*–,¹⁰⁵ which primarily means 'Kappe=cap could stand lot 'sheath' and SAG.DU for 'pommel', *kessaras pedan* (SU *aš ASRA*) 'place of the hand', strangely not 'head, pommel', is only once used as a designation of the handle of scepters or staffs,¹⁰⁶ but we do not know whether this phrase comprised the swords or not. As a rule swords (daggers and knives) are made of copper (URUDU), bronze (ZABAR), iron (AN.BAR), 'black iron', *i.e.* 'meteor iron' (AN.BAR.GE6), silver (KÜ.BABBAR), and rarely gold (GUŠKIN).¹⁰⁷ There are also cases where the swords were inlaid(?) with gold.¹⁰⁸ From one inventory text we learn that a sword or dagger has, besides a GABA and SAG.DU, a KUN, *i.e.* 'tail, tassel (?)', and the 'tail' alongside the pommel is made of rock crystal.¹⁰⁹ Further descriptions or attributes of swords such as *kinuḫi*–,¹¹⁰ *ŠURUḪTU*,¹¹¹ *puḫai*? 112 can at present not be translated. The sash or belt into which the daggers or swords are stuck, as evident on the rock monuments and other depictions, is called TUG.E.İB.GİR 'sash of / for sword'.¹¹³

⁸² Özgüç 1956, p. 29 ff.

⁸³ Erkanal 1977, no. 8.28; Özgüç 1986, p. 75, pl. 128, no. 3.

⁸⁴ Now in a private collection in Paris, Güterbock 1965, p. 197 ff.; Bittel 1976, p. 255.

⁸⁵ Özgüç 1955, p. 295 ff.

⁸⁶ Allegedly from Çorum. Müller-Karpe 1994, p. 431 ff.

⁸⁷ Bittel 1934, p. 51; Bittel 1940, p. 190 ff.

⁸⁸ Özgüç and Akok 1958; Tezcan 1960, p. 15 ff, pl. 30.

⁸⁹ Özgüç 1978, p. 96.

⁹⁰ Özgen 1985, p. 173 ff.

⁹¹ Summers 1991, p. 173 ff.

⁹² Müller-Karpe 1994, p. 439.

⁹³ Müller-Karpe 1994, p. 441.

⁹⁴ Akyurt 1995.

⁹⁵ Akyurt 1995, p. 216 with n. 57 and p. 218 with n. 78.

⁹⁶ Cf. de Jesus 1979, p. 97 ff.

⁹⁷ Yener 1995, p. 102.

⁹⁸ Yener 1995.

⁹⁹ Sandars 1961, pp. 17 and 24 ff, no. 3. On other non-military usage of swords see Kilian Dirlmeier 1990, p. 158 ff.

¹⁰⁰ MacDonald 1984, p. 56.

¹⁰¹ The Edict of Telipinu ii 29 ff, cf. Goetze 1957, p. 106.

¹⁰² For all these the Hittite uses the Sumerian word GİR; the Hittite reading is so far unknown; the reconstructed indo-european. The reconstructed PI form **ḡsi-/*ensi-* 'sword' does not have any equivalence in Hittite vocabulary, Gamkrelidze and Ivanov 1995, pp. 643 and 780.

¹⁰³ Ünal, Ertekin and Ediz 1992, p. 52; Ünal 1993, pp. 727–30.

¹⁰⁴ Beal 1986, pp. 644–51.

¹⁰⁵ In CHD L (1980) noted as part of a dagger (sword, knife).

¹⁰⁶ KUB 38.1 i 35.

¹⁰⁷ NA.NÍ[R] in a broken context in KUB 42.68, 5 must be taken as a mistake.

¹⁰⁸ URUDU.GİR TA GUŠKIN ḫuwalzinan, KBo 2.1 i 38, Carter 1962, p. 53.

¹⁰⁹ KBo 9.91 obv. 9: 1 GİR GAB KÜ KUN SAG.DU NA₄.DU₈.ŠÚ.A; Koşak 1982, p. 24 ff; 'tail' is also attested in KBo 18.161 rev. 14.

¹¹⁰ KBo 18.178 obv. 5; KUB 42.58, 5; in Luwian context *inuḫaima galuttaima* GİR.ZABAR^{III}, KUB 35.143 ii 4.

¹¹¹ KUB 12.1 iii 7, 11; Bo 3364 + 3970 iv 7.

¹¹² KUB 54.40 + Bo 68/219 rev.? 14.

¹¹³ KBo 18.181 obv. 6, 25; MS rev. 9.

From all this it is evident that the discovery of a Type B sword in an otherwise poorly known region east of Aegean is critical, since it leads us to further discussions about the relationship between Anatolia and the Aegean, as well as about the origin of the Hittite swords which up till now were known from texts, the depictions on the rock monuments and only rarely from archaeological discoveries. As the number of these swords found in Anatolia increases, so does the probability that swords of Mycenaean type B were manufactured by the Hittites.

A Significant Metallurgical Find from Çemialo Ridge, in the Upper Tigris Region in Southeastern Turkey: A Lost-Wax Mould

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Abstract: Technological developments in the early stage of metallurgy in Anatolia the variation of casting moulds. In parallel to the melting process, a wide range of objects from moulds of simple forming to the moulds for intricately shaped objects can be seen. This development of the mould typology, seems to have reached quite an important level in the fourth millennium BC. by the usage of an advanced mould technique which is known as *lost-wax casting*. During the excavations on the slopes of an archaeological site called Çemialo Ridge in the Upper Tigris region, some lost-wax mould fragments were uncovered next to an oven in the Late Iron Age layers. These mould fragments currently present the earliest and best-preserved finds in the region and demonstrate that the lost-wax casting technology was used in the Upper Tigris Anatolia in the Late Iron Age.

Keywords: Ancient metallurgy, lost-wax mould, casting, Iron Age, Çemialo Ridge, Upper Tigris region, southeastern Anatolia.

Özet – Yukarı Dicle Bölgesi’ndeki Çemialo Sırtı’nda Önemli bir Metalurjik Buluntu: Kayıp Balmumu Kalıp: Anadolu’daki metalurjinin erken safhasındaki teknolojik gelişmeler, döküm kalıplarının değişiminde kendini göstermiştir. Erime işlemine paralel olarak basit şekillendirme kalıplarından karmaşık şekilli objeler için kalıplara kadar geniş uygulama yelpazesi görülebilir. Kalıp tipolojisindeki bu gelişme, kayıp mum döküm yöntemi olarak bilinen gelişmiş kalıp tekniğinin kullanımı İ.Ö. 4. binyılda oldukça önemli bir seviyeye ulaşmış gibi görünmektedir. Yukarı Dicle Bölgesi’nde bulunan Çemialo Sırtı arkeolojik yerleşimin yamaçlarında yapılan kazılarda, Geç Demir Çağı tabakalarında bir fırın yanında bazı kayıp mum kalıp parçaları ele geçmiştir. Bu kalıp parçaları bölgede halen en erken ve en iyi korunmuş buluntuları ortaya koymakta ve Geç Demir Çağı’nda Anadolu’da Yukarı Dicle Nehri’nde kayıp mum döküm teknolojisinin kullanıldığını göstermektedir.

Anahtar Kelimeler: Antik metalurji, kayıp balmumu kalıp, döküm, Demir Çağı, Çemialo Sırtı, Yukarı Dicle Vadisi, Güneydoğu Anadolu Bölgesi.

Early metallurgy practices in Anatolia have an important place in the history of the evolution of metallurgy/mining. Archaeological finds recovered from excavations provide the most important source on this subject. In recent years, one of the regions for archaeological research is the area surrounded by Diyarbakır, Batman, and Mardin provinces in the Upper Tigris region. The casting mould fragments found in Çemialo Ridge, a rescue excavation taking place in the scope of Ilisu Dam and Hydroelectric Plant Projects, provide new contributions to our knowledge on Anatolian metallurgy. The archaeological site of Çemialo Ridge is located in the city of Batman, in the Beşiri province 1 km southeast of Yazihan Village, and Gedikli quarter and on the western slope of Garzan Stream. This archaeological research is being carried out as part of the ‘Salvage

Project of the Archaeological Heritage of the Ilisu Dam Reservoirs’ project (fig. 4.1).

The first investigations at Merkez were conducted by G. Algaze and his team in 1990.¹ Later on, the site was revisited by Aslı Erim Özdoğan and Savaş Sarıaltun for a survey research under the Salvage Project in 2002.² Excavations at Merkez, began under the direction of Erim Özdoğan in 2009 and continued between 2013–2015. During this project various architectural phases of the Middle Bronze Age and Iron Age were uncovered. In addition some pottery fragments were found which

¹ In this paper, Merkez, named as *Memikan Yanı*. Algaze et al. 1991.

² Özdoğan and Sarıaltun 2011, pp. 980 and 1108.

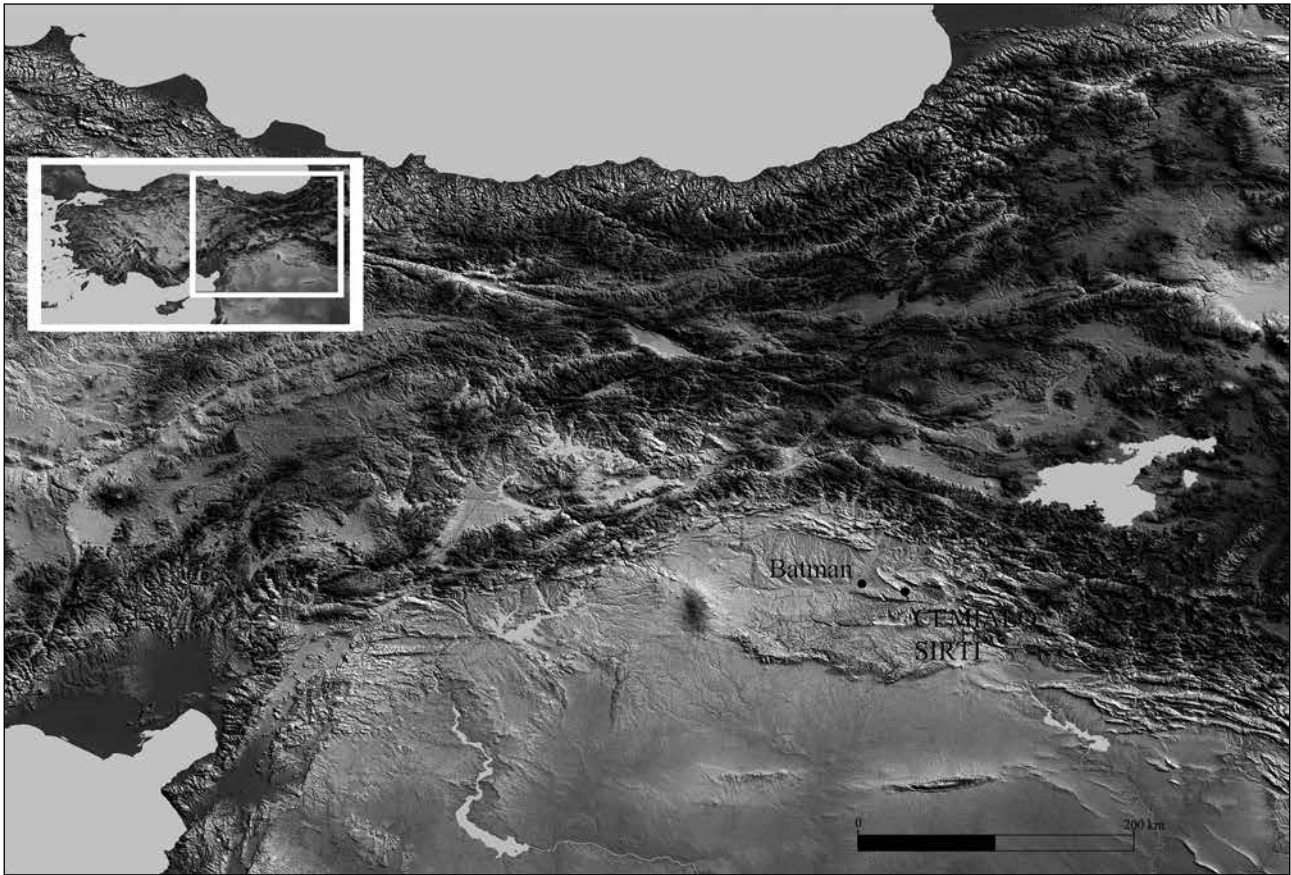


Figure 4.1. Map showing the location of Çemialo Ridge (by D. Yalçıklı, 2011).

dated back to the Middle Chalcolithic and Early Bronze Ages. Some of the Late Iron Age architectural layers were uncovered in the southern part of 34L trench on the hill top; here a wall and in the southeastern corner, an oven (4F) were found (fig. 4.2). The mouth (2.52×1.47 m.) of the oven, which is oriented in a north-south direction, opens to the north. The inside of the oven is partly damaged, and its infill contains rubble of burnt mudbrick and stone pieces, including pottery fragments (fig. 4.3). The oven has symmetrically placed side walls in a meander shape. These side walls are 2–4 cm thick and covered in plaster layers. The southern wall of oven 4F is preserved to 1 m. high and the mud-brick pieces found inside probably belong to its collapsed roof; on the other hand, the oven floor could not be traced. However, the simple mud floor of a similar and better preserved oven (57F) helps us to estimate the floor technology for 4F. These meander-shaped walls can be seen on the other ovens found at the site and their opposing curves may indicate that these walls were the lower part of the funnel, and there should be at least five funnels.

The mould fragments that were uncovered on the west of 4F oven, were found scattered between oven 4F and the wall, extending in a southwest-northeast direction. It is understood that these moulds would have been broken when their function was fulfilled, and discarded to this spot clearly in relation with oven 4F.

Moulds

As a result of the restoration and adjoining of the broken fragments found around the oven, we deduce that there must be at least two different moulds and only half of a mould exists (fig. 4.4). Among other fragments, a rim and possibly a base piece have also been identified.

The internal side of the best-preserved mould has been drawn and photographed, and it was restored in two pieces for publication (figs. 4.4 and 4.6). The form of the mould is similar to a lentil and has an oval section; the available h. is 10.2 cm, w. and th. is 11.1×4.1 cm (fig. 4.6a). The width of a rim is 8.2×6.5 cm in size, with a 1.1 cm deep funnel for pouring liquid metal into the mould. The hole as a part of the gate system (to pour molten metal into the mould) has an ovoid shape and 3.5×0.9 cm in size (fig. 4.6b-c). There are vents/channels on both sides (one each) of this hole.

The top section where the hole of the gate system is located joins to the ring-shaped negative trace of the melting of the wax model in the interior part of the mould. The circular section of this negative trace is 0.7 cm in diam. and in ring shape 3.6 cm in diam. There is a circular-sectioned, vertical column (1.4 cm in diam.) connecting to the lower part of the ring; and this column is decorated with a pattern of small circles, drawn as

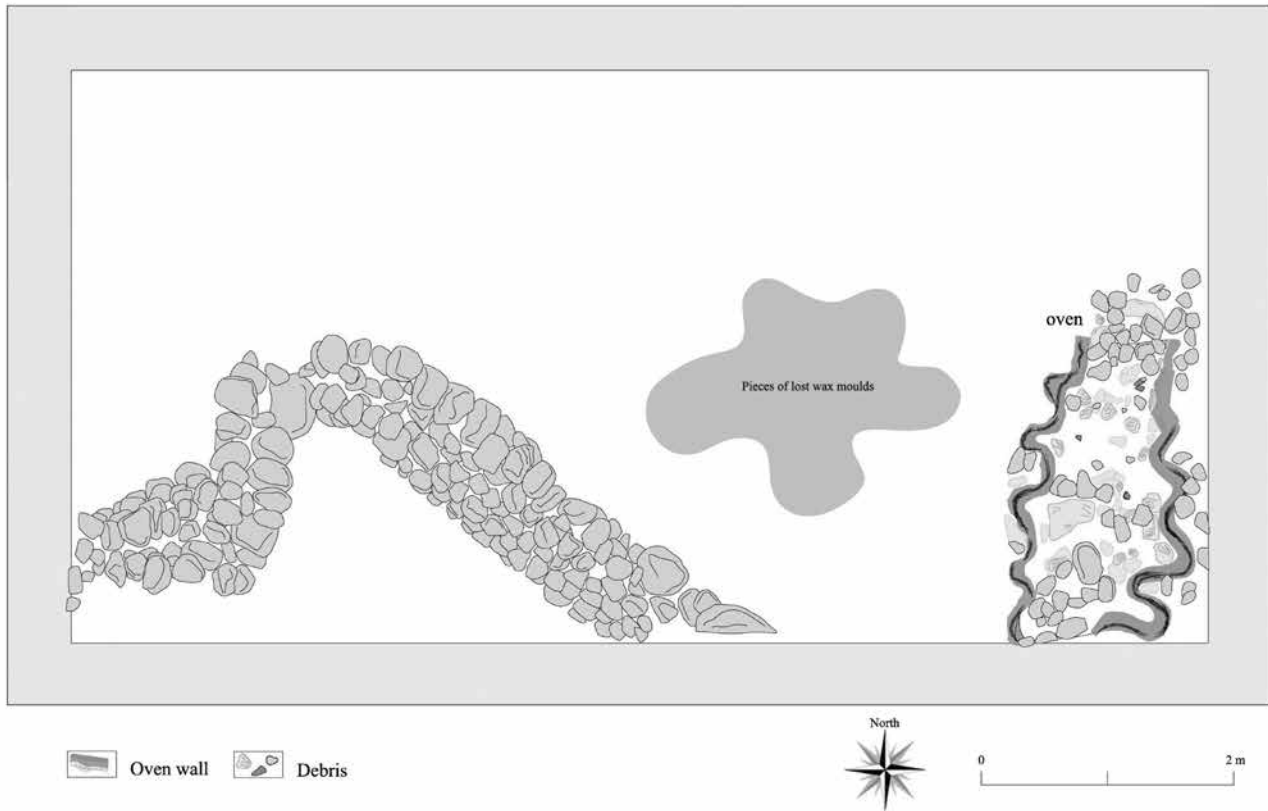


Figure 4.2. The plan of the architectural levels (by D. Yalçıklı, 2011).



Figure 4.3. The oven (by D. Yalçıklı, 2011).

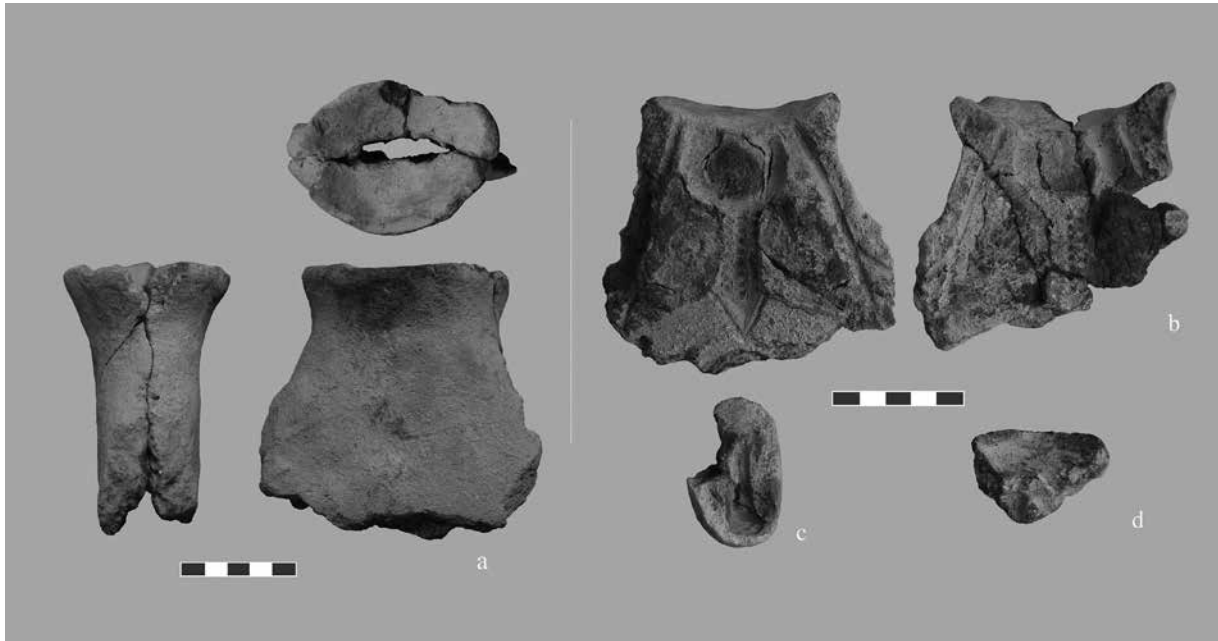


Figure 4.4. A lost-wax mould from Çemialo Ridge (by D. Yalçıklı, 2011).

six rows of eight circles each. Under this part, another negative trace (2.3 cm diam.) with a circular-section can be seen, which might be a part of a ring (approximately 8 cm in semi-diam.). This bow-shaped negative trace possibly belongs to the space left by the wax model. In this bow-shaped part that joins with the vertical column, a 'V' shaped groove can be identified. Two vents (0.5 cm w.) are located on both sides of the negative trace of the wax model, and these connect to the gate system hole. There is also another vent on the opposite side of the mould which opens to the outer edge. Two bow-shaped vents/channels in both sides used for degazing by connecting the outer edge. Inside of the mould, the surface around the negative trace of the melting of the wax model is broken, and therefore it has a rough surface. The difference between surfaces occurred because a cylindrical clay core (2.2 cm in diam. and 0.95 cm h.) was once placed in the centre of the ring of the wax model, in order to ensure the intended form of the model and after that, coating of the wax model. Although this clay core disappeared, its existence in the past can be determined by two unbroken but still uneven surfaces where the clay core was osculated.

The second fragment is a 5.0 cm rim piece and a part of the gate system (fig. 4.5a). The hole of this partly preserved gate system, which was formed as a funnel for pouring the metal into, is broken. In the lower part of the fragment, a very small part (approximately 1 cm) of the negative trace of a wax model can be observed.

The third fragment (5.1 cm × 3.4 cm) belongs to the lower part of a mould (fig. 4.5b). Although any clear connection between this one and the rim fragments mentioned above, the probably belong to the same mould. The wax

model trace in the mould consists of a foot/pedestal with a circular-section (1.3 cm in diam.) and a stick like an element again with circular-section (0.7 cm in diam.). A vent/channel of which only a small portion is preserved was directed towards the outer part of the mould, and this foot-like element is located at the edge of the negative trace.

Lost-wax casting

Technological developments in metallurgy such as melting and moulding methods have made mass production possible. The effect of this development shows itself in the multiplicity of types of casting moulds.

The use of casting moulds, which appear around Chalcolithic period, increases and varies in the Bronze Age. The process of development is more or less similar in Mesopotamia, Palestine, Anatolia, Iran and related regions.³ Amongst the casting moulds, the simple 'open mould/single mould' type is the most common⁴ followed by slightly developed versions of the 'double mould/two-part mould',⁵ the two-part mould with core/two-piece cored mould⁶ and multi-sectional moulds.⁷ While complicated forms produced by those moulds mentioned above, 'lost-wax casting/investment casting/à cire perdue'⁸

³ Moorey 1999, p. 206; de Jesus 1980, pp. 41 and 43; Müller-Karpe 1994, p. 221; Weeks 2013, pp. 277–87; Ogden 2000, pp. 157–60; as well as Branigan 1974, pp. 82–83.

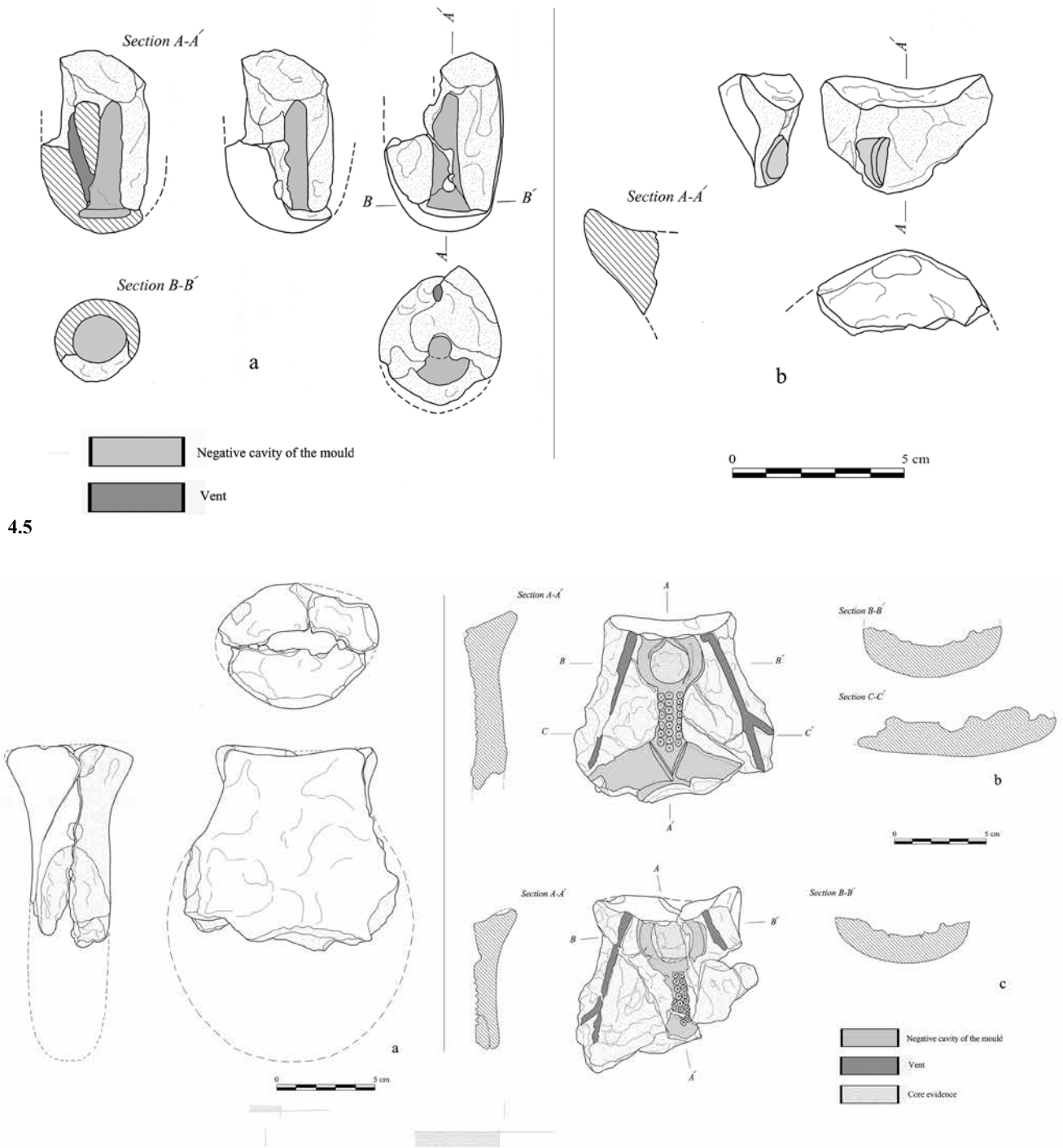
⁴ Hund 1980, pp. 63–79; as well as Davey 1983, p. 175.

⁵ Hund 1980, pp. 63–79; as well as Davey 1983, p. 175.

⁶ Özgüç 1986, pp. 42–43, pls. 86–88.

⁷ Moorey 1985, p. 40; as well as von Luschan and Andrae 1943, pp. 18 and 22, pl. 8.

⁸ Hund 1980, pp. 63–79; Davey 1983, p. 178; Davey 2009, pp. 147–53; as well as Bilgi *et al.*, 2004, pp. 17 and 19.



Figures. 4.5-6. Mould parts (fragments) from Çemialo Ridge (by D. Yalçıklı, 2011).

moulds were used to produce plastic and intricate formed objects.

Casting mould samples from Çemialo Ridge are identified as evidence for lost-wax casting technology. This technique was used for the production of objects which possess a form that prevents to open the mould after the process of casting rather than open mould, two part moulds or multi-sectional moulds which are impossible to use for that purpose. This application starts by making a model of an intended object using wax. Unfortunately, we

have no which indicates the raw material used as ‘wax’ in these early periods. However, it must be some kind of material which retains the shape it is formed into, while also a substance that can easily turn from solid to liquid or gas; hard animal fat, bees-wax, resin or bitumen are strong possibilities in that sense.⁹ In order to facilitate the release of the gas, vents made of wax were added and then the model was covered by clay. A funnel-shaped gate system is used to allow the molten wax to run out; this gate is

⁹ Moorey 1985, p. 41.

also used to pour molten metal into the negative trace/gap left by the wax model. To start the process, the mould is placed in an oven upside down to empty the wax from the mould, which provides the negative trace of the object and vents. Then the metal is poured into the hardened clay mould. To get the final product, the clay cast is broken down and the process ends with the cleaning of the burrs and vents. This production technique allows a producer to include a high degree of detail in the object. Therefore, the fragments found in Çemialo Ridge should be interpreted as discarded pieces of the broken clay mould to reveal the metal product.

Mould samples and cross-cultural comparisons

There is a gap in dating between the evidence of the early lost-wax casting mould usage and the archaeological finds indicating this technology. The earliest group-find is a hoard found in Nahal Mishmar in Palestine dating back to fourth millennium BC.¹⁰ Other possible lost-wax technology indicators can be seen in Mesopotamia: from the Uruk period (3.200 BC.), an animal figurine appliqué on a cylindrical stamp seal;¹¹ a quadriga from Tell Agrab dating to Early Dynastic period,¹² metal figurines found at Tell Asmar and Hafaje¹³ and bull-head and harnesses from Kish¹⁴ and Ur Royal tombs.¹⁵ For a bronze sculpture head dated to the Akkadian period and large scale products such as Bassetki sculpture, a developed lost-wax casting technique was used which is known as hollow inside or core.¹⁶

According to Robert J. Braidwood and Linda S. Braidwood,¹⁷ six copper human figurines recovered from Tell Al-Judaidah in Amuq Plain at the end of Phase G were also thought to have been produced using the lost-wax casting technique. Also, many human and animal bronze figurines from Alacahöyük¹⁸ and Horoztepe (second half of the third millennium BC.)¹⁹ are probably products of this technique.²⁰

Written sources provide important evidence about this technique and its usage in the early periods. In a cuneiform tablet found in the city of Sippar and dated to the reign of Hammurabi mentions the use of wax for the casting of a bronze key, produced for a temple. This is the earliest written evidence for this technique.²¹

On the other hand, evidence of moulds for the lost wax casting technique are quite limited. The earliest finds are axe mould fragments from Poliochni, dating to the Early Bronze Age I,²² later examples include mould fragments found in Lefkandi,²³ in the Athenian Agora (fourth century BC.),²⁴ in Olympia (fifth century BC.),²⁵ and in Corinthian mould fragments dated to the Byzantine period.²⁶ Similar finds recovered in Tell edh-Dhiba dated to Old Babylonian Period.²⁷ Other groups of finds are the metal fillings of funnels and gate system remains or burr remains on objects. Most of these kind of casting residues are found in the Archaic period on Samos.²⁸

Therefore, the mould fragments of Çemialo Ridge are important for a better understanding of Anatolian metallurgy and the usage of the lost-wax casting technique in the Late Iron Age period, as these finds are the earliest evidence for the region.

Conclusion

When considering the early application of metallurgy, similar developments can be seen at similar times in Anatolia and surrounding areas. Parallel to these developments, at around fifth-fourth millennium BC., a multiplicity of types occurs. If the intended object has an intricate form, single – use – moulds appear. The objects which were possibly produced with that technology increased and then spread through Anatolia, Iran, the coast of the Levant, and the Mediterranean. Through the objects produced in Mesopotamia, it is possible to detect the usage of a more advanced form of this type of mould (lost-wax mould with core) in the third millennium BC.

It is unusual to find broken and discarded pieces of lost-wax moulds in an archaeological excavation. A couple of similar samples of early moulds have been uncovered in the Aegean Early Bronze Age II site of Poliochni and in Tell edh-Dhiba, an Old Babylonian period (1.700 BC.) site in Mesopotamia. On the other hand, the number of early samples are quite limited, and thus, the evidence is insufficient to determine the earliest date for lost-wax mould technology. Fortunately, evidence of this functional mould type is abundant for Iron Age, Roman, and Post-Roman periods.

The scattered mould fragments found in Çemialo Ridge, uncovered around an oven (4F), indicate that the oven was used as a furnace for metal melting and casting. On the other hand, it is still hard to claim that this fire installation was part of a metal workshop on the basis of these pieces; most likely is this is an oven that has been used for a

¹⁰ Bar-Adon 1962, p. 215; as well as Moorey 1988, p. 174.

¹¹ Heinrich 1936, p. 47, pl. 13a.

¹² Frankford 1943, pp. 13, 58 and 59.

¹³ Frankford 1939, p. 39.

¹⁴ Moorey 1978, p. 113.

¹⁵ Woolley 1934, pp. 271–72, pls. 166 and 167a; as well as Hansen 1998, p. 56.

¹⁶ Al-Fouadi 1976, pp. 63–76; as well as Davey 2009, p. 150.

¹⁷ Braidwood and Braidwood 1960, p. 301, pls. 56.a-b and 57–64.

¹⁸ Koşay 1938, pls. 84.49 and 96.

¹⁹ Özgüç and Akok 1958, pp. 17–19, pls. 9–12; as well as Özgüç 1958, p. 54.

²⁰ Hunt 1980, pp. 65–66.

²¹ Hunt 1980, p. 67.

²² Bernabò-Brea 1964, pp. 64 and 591, pl. 85d; as well as Branigan 1974, p. 83, fig. 4; as well as de Jesus 1980, p. 41, fig. 15, no. 1.

²³ It is dated in Lefkandi around 900 BC.: Popham *et al.* 1980, pp. 93 and 94, pl. 12.

²⁴ Mattusch 1977, p. 352, pls. 84–86.

²⁵ Schneider 1989, p. 18, fig. 1.

²⁶ Mattusch 1991, p. 391, pls. 103d and 106a-c.

²⁷ Davey 1988, p. 65, fig. 6, no. 7; Davey 2009, pp. 149–50, fig. 1, no. 2.

²⁸ Kyrieleis 1990, p. 23, fig. 8.

variety of purposes, one of which was metallurgy. The other three ovens found at the site were close to dross, but no evidence has been found indicating the presence of crucible or casting technology.

Although we have not encountered any mould piece indicating the usage of lost-wax casting technology, this does not indicate its absence in Anatolia where almost every phase of metallurgy can be seen. Even the presence of plastic and intricately formed objects is evidence of this technique. Moreover, the Late Iron Age mould fragments from Çemialo Ridge provide concrete evidence for the use of the lost-wax casting technique, and represent the earliest and the best-preserved samples from Anatolia and Upper Tigris region. The existence of the two vents which were placed on both sides of the negative trace of the model can only be seen in the developed versions of this kind of mould. This advanced level of the production of the mould shows us strong evidence of the metallurgical knowledge of Anatolia.

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I would like to thank to Dr Aslı Erim Özdoğan who uncover these mould samples under many difficult conditions on the slope of the Çemialo Ridge archaeological site and provide an opportunity to publish this paper. I also extend my thanks to Mr Savaş Sarıaltun who helped me to get the necessary information from the documentation of the archaeological project's data base.

Iron Age *Fibulae* in the Museum of Şanlıurfa in Southeastern Turkey

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Abstract: In this brief article five bronze *fibulae*, on display in the Museum of Şanlıurfa and belonging to the Iron Age, will be presented. At least two of these five were found at Lidar Höyük.

Keywords: *Fibula*, Iron Age, Museum of Şanlıurfa, Lidar Höyük, southeastern Anatolia.

Özet – Şanlıurfa Müzesi’neki Demir Çağı *Fibulaları*: Bu makalede konu edilen fibulalar Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izni ile çalışılmıştır.

Bu kısa makalede Şanlıurfa Müzesi’nde sergilenmekte olan ve Demir Çağı’na ait beş adet bronz *fibula* tanıtılacaktır. Bu *fibulalardan* en az ikisi Lidar Höyük’te bulunmuştur.

Anahtar Kelimeler: *Fibula*, Demir Çağı, Şanlıurfa Müzesi, Lidar Höyük, Güneydoğu Anadolu Bölgesi.

In the Museum of Şanlıurfa a minor collection of bronze *fibulae* of the Iron Age is on display, which consists of five pieces. Two of these were published in the museum’s catalogue recently,¹ but not to any greater extent. According to the museum’s catalogue and inventory books three of these *fibulae*, *i.e.* nos. 1, 2 and 5, are said to originate from Lidar Höyük (fig. 5.1), which was situated on the eastern bank of the Fırat river, about 50 km northwest of Şanlıurfa. Excavations were carried out here between 1979 and 1987 by a team from the *Ruprecht – Karls – Universität Heidelberg*. Since 1988 this höyük site has been flooded by the waters of the Atatürk Dam Basin, covering the layers of the Late Chalcolithic, Early Bronze Age, Middle Bronze Age, Late Bronze Age, Iron Age, Roman/Byzantine, and Islamic periods; however, no *fibula* is known in its publications.² The other two *fibulae* in the

Museum of Şanlıurfa, *i.e.* nos. 3 and 4, were supposedly purchased by the museum, and therefore one cannot tell their provenance with certainty. The date of three pieces was wrongly indicated as ‘Late Roman’. These two groups are displayed in two different display cases in different halls of the new museum in Şanlıurfa. The present article does not cover the *fibulae* in the depot of the museum.

A *fibula* is a brooch or pin for fastening garments; and it developed in a variety of shapes, but all of these shapes were based on the safety-pin principle. Technically, the Latin term, *fibulae*, refers to Roman brooches; however, it is now widely used to refer to brooches from the entire ancient and early medieval eastern Mediterranean. Beginning in the late second millennium BC. *fibulae* were in widespread use throughout ancient Anatolia and Mesopotamia. During the Iron Age they were one of the most characteristic finds at *höyük* sites and *tumuli* in most parts of Asia Minor. Iron Age *fibulae* in southeastern Anatolia and northern Mesopotamia have a triangular arch, although the characteristic shape of *fibulae* in the

¹ Karul, Kozbe and Yavuzkır 2017, pp. 320 (our cat. no. 5) and 347 (our cat. no. 2).

² Both in the phases of Bronze and Iron Ages some graves were excavated at Lidar Höyük where Iron Age structures were found mainly in a large trench called Q, R, S 44–45 with an unbroken stratigraphy from the 12th to the sixth/fifth century BC.: Müller 1999, p. 123; and Hauptmann 2017, pp. 247–49. The material of these rescue excavations were brought to the Museum of Şanlıurfa. According to our knowledge, neither in the main publication for the Iron Age of the site (Müller 1999, pp. 123–32),

nor in the excavation reports or later assessments (Hauptmann 2017, pp. 246–49), no *fibula* has been published.

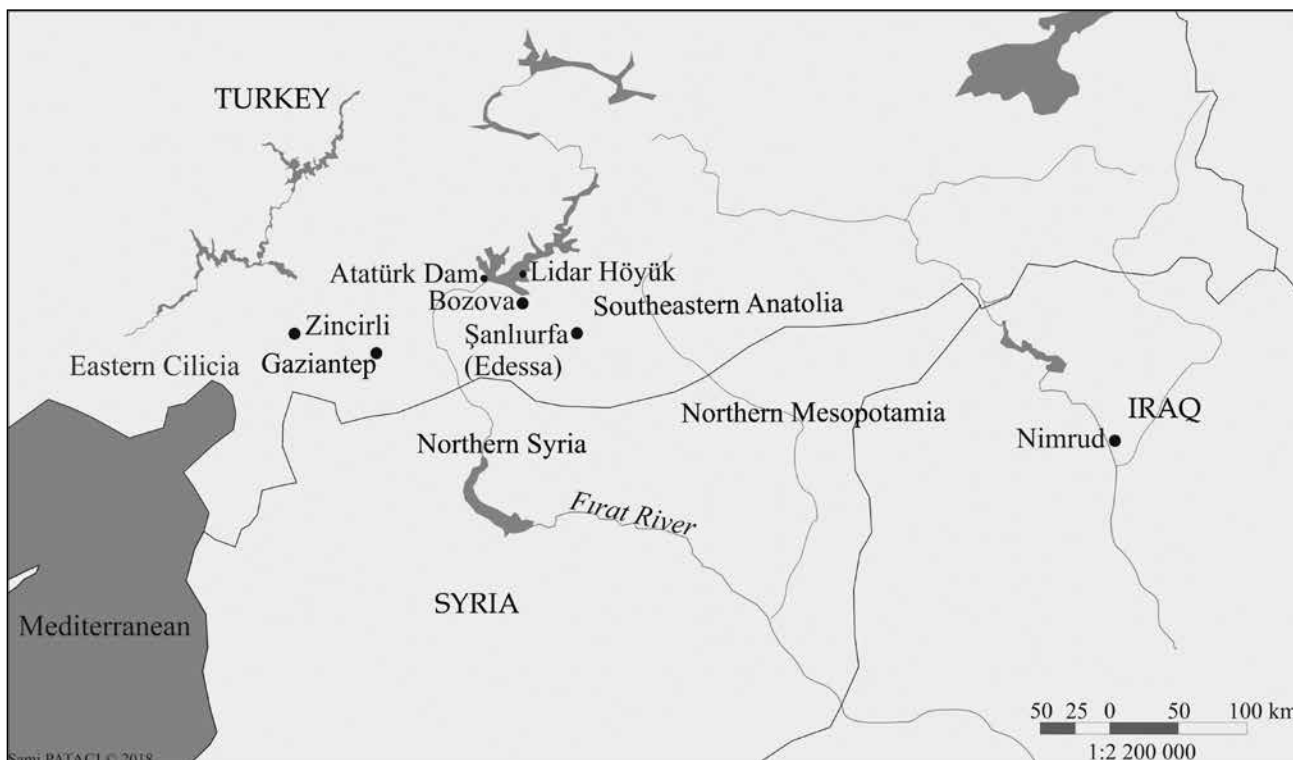


Figure 5.1. Places in southeastern Anatolia and northern Mesopotamia referred to in the text (by S. Pataci, 2016).

central and western parts of Anatolia is a simple arch. In both cases the bow can be beaded and moulded.

The pioneering volume of Ertuğrul Caner on Anatolian *fibulae* deals with the central-western part of present-day Turkey³ and examples found in the south-eastern part of Turkey are not covered by this work.⁴ Caner himself complains that no systematic research on *fibulae* from northern Syria and southeastern Anatolia has been published.⁵ Some examples from Gordium, especially imported ones, are known, but a complete map of their presence in Mesopotamia is lacking. It is therefore important to present these five well-preserved examples from Şanlıurfa in a brief article, as Iron Age *fibulae* of the northern Syrian/southeastern Turkish areas are not very well represented in archaeological literature. During the Iron Age, roughly between the 12th and sixth centuries BC., all these areas shared a material culture, with common features with eastern Cilicia and northern Syria. In the art of *fibulae* of these regions we can also see some influences of the Anatolian *fibulae* of the Iron Age. This is particularly evident in the *fibula* no. 1 of our catalogue below. Local characteristic features are also observed in some Iron Age *fibulae* preserved in the Museum of Şanlıurfa, most of which belong to the vast group of so-called ‘knee *fibulae*’ the most popular type in the Near East, spread from Egypt – through Palestine and Syria – to Cyprus and Persia. They

correspond to Stronach’s type III. Some examples have been found in the Palestinian tombs of the eighth century BC.⁶ The type had begun to spread eastwards before the end of the eighth century BC., as demonstrated by a find in the tomb of the Assyrian king Sargon II who reigned between 721–705 BC.⁷ This type always has a catchplate in the form of a hand and their bow section was probably cast, using a lost-wax technique.

Catalogue

No. 1 (fig. 5.2): L: ca. 70 mm; th.: ca. 8 mm.

Provenance: Lidar Höyük.

Condition: Straight pin is missing. Smooth brown patina.

Typology: *Fibula* with an archer bow with a collared bead and varied ribbed. As pointed out by David Stronach this type is a sort of link between the western arched *fibulae*



Figure 5.2. An Iron Age *fibula* from Lidar Höyük in the Museum of Şanlıurfa; cat. no. 1; acc. no. Lİ.84.48 (by E. Lafli, 2004).

³ Only vol. one is published in 1983, but this never followed by a subsequent one.

⁴ For some recent *fibula* studies in Anatolia cf. Lafli and Buora 2006 as well as 2012.

⁵ Caner 1983, p. 177.

⁶ Stronach 1959, p. 193.

⁷ Stronach 1959, p. 193.

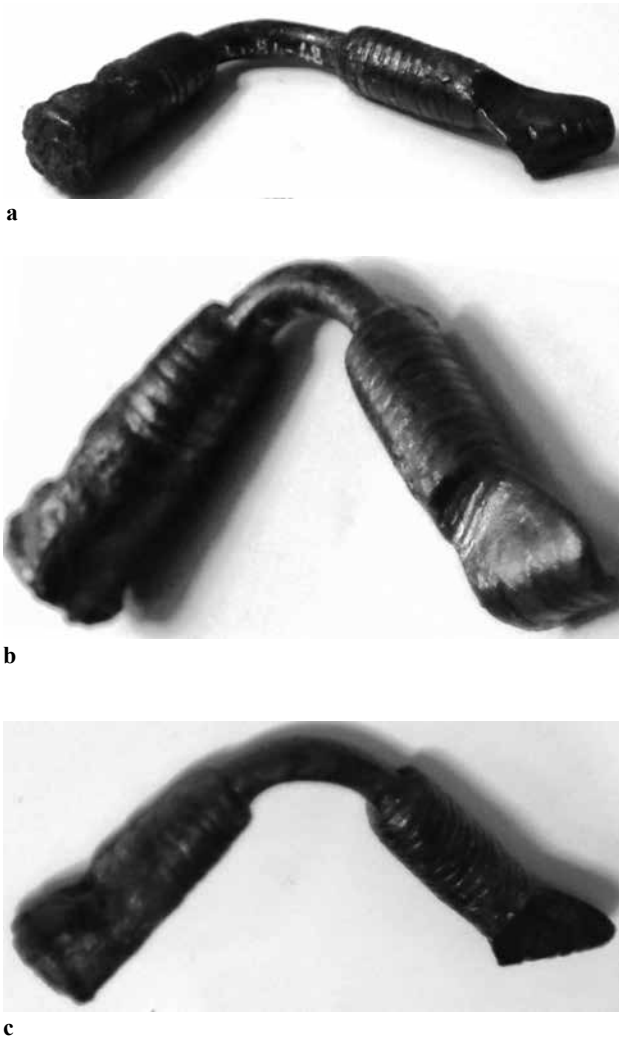


Figure 5.3a-c. Cat. no. 2 (by E. Lafli, 2004).

and the oriental, triangular *fibulae*. It appears late in Mesopotamia and appears very rare. The shape recalls that of an unstratified *fibula* found at Nimrud.⁸
 Dating: No earlier than ninth century BC.

No. 2 (figs. 5.3a-c): Type Stronach 1959 III, 4; and type Giesen XII ('Sonderform').

Acc. no.: Lİ.84.48; L.: 80 mm; th.: 5 mm.

Provenance: From the excavations in Lidar Höyük in 1984.

Condition: Straight pin is missing. Smooth brown patina.
 Dating: Mid eighth/seventh century BC. This date is also confirmed by Katharine Giesen, which does not exclude an earlier appearance and a continuation at least until the entire sixth century BC.

The only specimen found in Asia Minor originates from layer 3 of the *höyük* site of Gordium. It was lost at the beginning of the third century BC., which does not affect its dating. Giesen notes that during the Iron Age similar *fibulae* were often exported by sea or traveled with sailors and sometimes reached sanctuaries, such as those located on Cyprus.

⁸ Stronach 1959, pl. 1, no. 5.



Figure 5.4. Cat. no. 3 (by E. Lafli, 2004).

Reference: Karul, Kozbe and Yavuzkır 2017, p. 347, fig. top, right. Its date is roughly given as '1.200–330 BC.'

No. 3 (fig. 5.4): L: ca. 80 mm; th.: ca. 6 mm.

Provenance: Unknown, as it is an acquisition.

Condition: Straight pin is missing. Smooth brown patina.
 Typology: Triangular *fibula* with ribbed and beaded mouldings as well as multiple incised collars; cf. Blinkenberg Type 12, 121, exported also at Delos.⁹ Type Stronach 3 and group 1 of Caner.¹⁰

Dating: During the seventh century BC. the distribution of this type appears to have stretched from the Nile delta to western Persia.¹¹ In the various regions, several variants of local manufacture are known. In the display case of the museum its date is given as 'Late Roman'.

No. 4 (fig. 5.5): L: ca. 50 mm; th.: ca. 8 mm.

Provenance: Unknown, as it is an acquisition.

Condition: Straight pin is missing. Smooth brown patina.
 Typology: Type van der Osten I a and group 2 of Caner.¹² Incised decoration of encircling lines on the whole surface.



Figure 5.5. Cat. no. 4 (by E. Lafli, 2004).

⁹ Blinkenberg 1926, p. 245, fig. 293; and Sapouna-Sakellarakis 1978, p. 132, no. 1711 (type XII B c).

¹⁰ Caner 1983, pp. 182–83, no. 1197.

¹¹ Stronach 1959, p. 197.

¹² Caner 1983, p. 183, no. 1200.



a



b

Figures 5.6a-b. Cat. no. 5; acc. no. Lİ.85.5 (by E. Laflı, 2004).

Dating: From the mid-eighth century to the end of the seventh century BC. In the display case of the museum its date is given as ‘Late Roman’.

No. 5 (figs. 6a-b): Acc. no.: Lİ.85.5;¹³ L: 40 mm; w.: 27 mm; th.: 10 mm.

Provenance: Excavations in Lidar Höyük in 1985. Condition: Smooth brown patina.

Typology: Multi-ribbed *fibula* with an accentuated apex.

Dating: Type Stronach IV, group 2 of Caner. According to Stronach¹⁴ it is attested at Zincirli, Nimrud, and Susa, mainly in the seventh century BC., but perhaps in use later as well. In the display case of the museum its date is given as ‘Late Roman’.

Reference: Karul, Kozbe and Yavuzkır 2017, p. 320, fig. top, right. In this publication its date is given as ‘Middle Bronze Age’ (*i.e.* ‘2.000–1.600 BC.’).

Conclusion

If our analysis is correct, in the Museum of Şanlıurfa we would have only one example of an Early Iron Age *fibula*, dated probably just after 900 BC. In this collection the triangular type of *fibula* is the angular equivalent of semicircular form with equally varied mouldings. It is the most attested and reaches at least until the end of the seventh century BC.

¹³ In the display case of the museum it is given that this piece is an acquisition, but it was published in the catalogue of the museum with a provenance as ‘Lidar Höyük’: Karul, Kozbe and Yavuzkır 2017, p. 320, fig. top, right.

¹⁴ Stronach 1959, p. 203.

Notes and acknowledgements

This collection was studied with the authorisation of the Turkish Ministry of Culture and Tourism Directorate of the Monuments and Museums on July 9, 2001, and enumerated as B.16.0.AMG.0.10.00.01/707.1(9), on February 13, 2002 and enumerated as B.16.0.AMG.0.10.00.01/707.1–2 and on December 2, 2004 and enumerated as B.16.0.AMG.0.10.00.01/707.1/14. The necessary documentation was assembled during December 2004.

Urartian Bronze Clothing Badges from the Museum of Karaman in Central Turkey

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Abstract: In this study, we will focus on a group of clothing badges that have been acquired by the Archaeological Museum of Karaman. Clothing badges, which are also called offering plaques, are used both for the purpose of ornamentation and protection. Plaques are generally produced by cutting bronze belts into square, rectangular or oval shapes, and then punching holes on their edges for sewing them on the cloth or leather. Samples in the Archaeological Museum of Karaman are rectangular and their upper sides are plain or indented. Decorations on the plaques are incised or embossed. Standing figures or portraits of women and men and geometric decorations are seen on the plaques. Clothing badges reflect general features of Urartian art and they must originated in Giyimli.

Keywords: Clothing badge, offering plaque, Urartian, the Archaeological Museum of Karaman, central Turkey, eastern Turkey.

Özet – Karaman Müzesi’nden Urartu Bronz Giyim Rozetleri: Bu çalışmada Karaman Arkeoloji Müzesi’ne bağış ve satın alma yoluyla kazandırılan, bir grup bronz giysi apliği tanıtılacaktır. Adak levhaları olarak da adlandırılan giysi aplikleri hem takı hem de koruyucu amaçlı kullanılmıştır. Levhalar genelde bronz kemerlerin kare, dikdörtgen ya da oval şekilde kesilerek tekrar kullanımı ile oluşturulmuştur ve kenarlarında kumaşa dikilmek üzere ip delikleri bulunmaktadır. Karaman Müzesi’ndeki örnekler dikdörtgen forma sahip olup üst kısmı düz veya dendane biçiminde kesilmiştir. Levhaların üzerindeki bezemeler kazıma veya kabartma olarak yapılmıştır. Ayakta kadın ve erkek figürleri ile sadece baş ya da geometrik bezemeler kullanılan motifler arasındadır. Giysi aplikleri Urartu sanatının genel özelliklerini yansıtmakla beraber Giyimli kökenli olmalıdır.

Anahtar Kelimeler: Giysi apliği, adak levhası, Urartu, Karaman Arkeoloji Müzesi, Orta Anadolu Bölgesi, Doğu Anadolu Bölgesi.

The aim of this study is to introduce a group of bronze plaques acquired by the Archaeological Museum of Karaman or donated in 1972–1980. The clothing badges,¹ which are also known as offering plaques, were used as both ornaments and for protective purposes.² The bronze plaques were decorated through chiseling or embossing. There are holes punched on the corners of the badges, which are generally in a rectangular shape, for sewing them to the fabric. The Archaeological Museum of Karaman has 4 of these bronze clothing badges, which constitute the subject of this study.³

The clothing badges

No 1: Clothing badge with a standing god figure (fig. 6.1; pl. 1, no. 1).

Provenance: acc. no. 1636.

Measurements: H. 14.0 cm; w. 8.0 cm.

Typological description and state of preservation: The badge is close to a rectangle in shape and was made using a sharp pointed chisel. The figure of a divinity, who is depicted as standing and from side view, is wearing a long embroidered dress. On his head is a booble hat. He is holding a branch⁴ in a pot in his right hand and a globe

¹ Belli 2010, p. 374.

² Belli 2010, p. 387.

³ Cf. also Ekici 2011.

⁴ Such shapes as palmettes, cones, buds, rosettes, leaf-shaped spears, branches, circles and dots were formed through stylisation of the tree of life in the Urartians: Belli 1982, p. 237. The tree of life is also known to have been depicted in such a stylized way as a spear or candlestick.

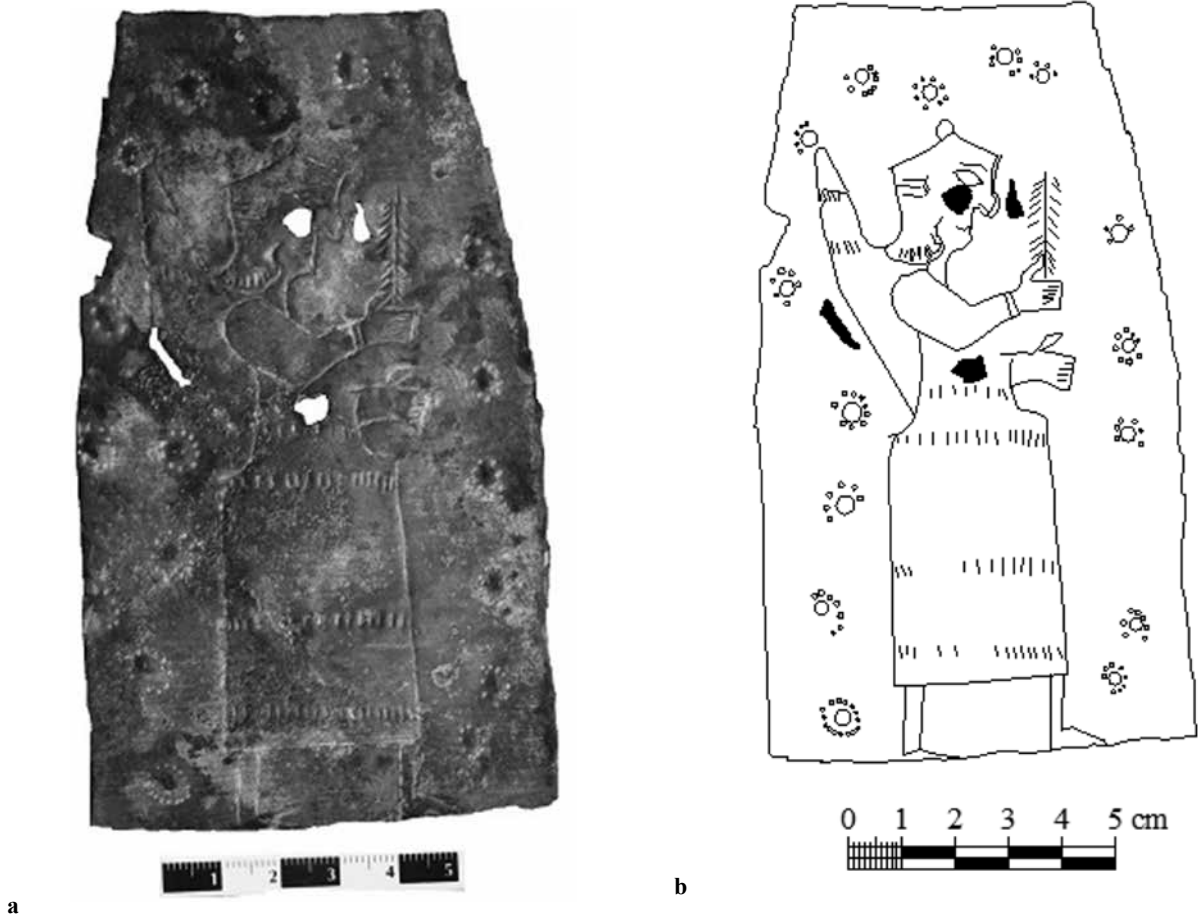


Figure 6.1a-b. A clothing badge with a standing figure (by M. Ekici, 2011).

like object⁵ in his left hand. A quiver⁶ (?) is hanging on the back of his shoulder. Dotted rosettes were used as a filling pattern on the work.

Comparanda: The god is depicted as a lion on a similar example exhibited in the Archaeological Museum of Van and there are images of the god with rams behind him on some examples in the special collections in Italy.⁷

No. 2: Badge showing two human figures standing face to face (figs. 6.2-3, pl. 1, no. 2).

Provenance: acc. no. 1637.

Measurements: H. 13.0 cm; w. 10.0 cm.

Typological description and state of preservation: The rectangular plaque is indented. Two carved human figures depicted standing face to face are seen. Depicted frontally, a standing male figure wearing a long dress is seen on the

right side of the artefact. On his head is a pompomed bonnet, with the tassels of the bonnet hanging behind his ears. A lock of his hair covered by the bonnet, adorned with notches, has fallen over his forehead. He is holding a sapling in his right hand and a bag in his left hand. He has a thick belt around his waist. The figure is depicted frontally while the feet are given from side view. Facing him is a woman depicted in profile with a long, embroidered dress and a headscarf on her head. She is holding her left hand upward and holding a stick with a flag fastened on one end. Comparanda: A bucket⁸ in the shape of a flat box is seen in her right hand. Dotted rosettes were used as a filling pattern. The background of the artefact was completely filled with spirally-decorated motives. These spiral decorations⁹ are also seen on the Giyimli plaques (fig. 6.4). The sequential holes in the lower edge of the artefact for sewing the plaque on to fabric or leather.¹⁰ Some clothing badges were cut out of bronze plaques which were previously used as belts, thus used for the second time. The fact that there are

⁵ On a sample from Metropolitan Museum the god holds a similar object on his hands: Belli 2010, p. 322.

⁶ Such patterns on the back of the shoulder have also been characterized as wings by some researchers: Taşyürek 1975, p. 155; as well as Çilingiroğlu 1997, p. 160, fig. 98. Kellner points out that it is difficult to decide whether these are wings or quivers and whether the difference in the way they were engraved are due to poor workmanship or a difference of functionality: Kellner 1982, p. 93. However, some researchers express that the part sticking out downwards, which is seen in most examples, would not be in a wing figure: Ligabue and Salvatori 1978, p. 11. There is no part sticking downward in Archaeological Museum of Karaman sample so we define it as a wing.

⁷ Ligabue and Salvatori 1978, p. 11, fig. 9.

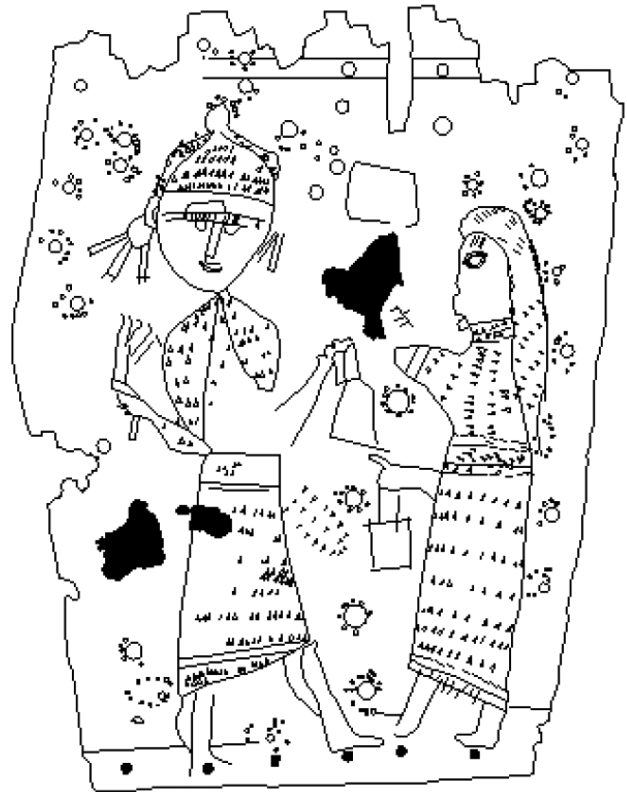
⁸ The bucket that the woman is holding in her hand is in the shape of a flat box, which is a characteristic of the Urartian buckets of seventh century BC.: Başaran 1981, p. 88.

⁹ The decorations seen on its back side are also seen on a plaque that belongs to the Giyimli bronze treasure in Adana Museum: Erzen 1972, pp. 208–209, fig. 41.

¹⁰ Boardman 1961, p. 180; as well as Kulaçoğlu 1990, p. 179.



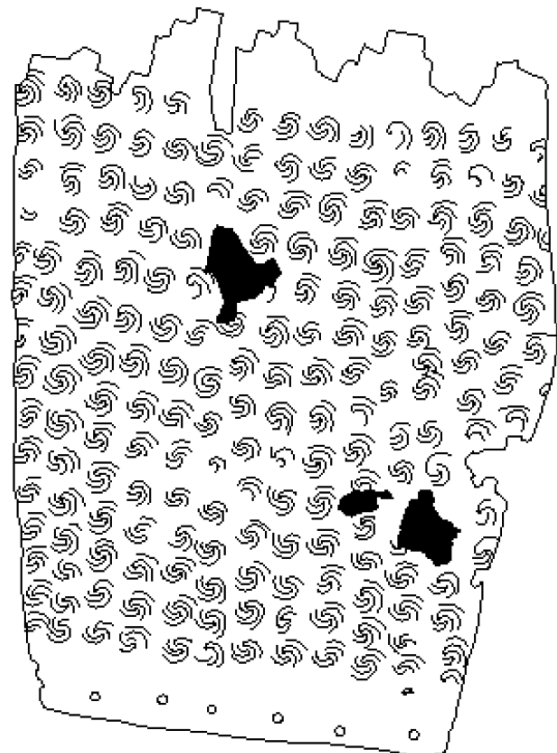
6.2a



6.2b



6.3a



6.3b

Figures 6.2a-b-3a-b. Two badges with two human figures standing face to face (by M. Ekici, 2011).



Figure 6.4. Spiral decoration on the plates from Giyimli (by M. Ekici, 2011).

decorations on both the front and back sides of this plaque, indicates the second use of a belt for this plaque.

No 3: The badge showing two human figures standing face to face (**fig. 6.5, pl. 1, no. 3**).

Provenance: acc. no. 1638.

Measurements: H. 9.5 cm; w. 6.5 cm.

Typological description and state of preservation: The badge is rectangular in shape and incomplete. A standing woman (goddess) with a long dress is depicted in profile. Her head is covered with a long headscarf. She is carrying a stick with a rectangular flag fastened on one end. In her other hand is a bulgy attribute made with notches. Although it has been suggested that this object might be prayer beads or an object used during religious ceremonies, it is not certain.¹¹ Though two human figures standing face to face were depicted in the artefact, only one hand of the second figure, holding a branch, can be seen as the plaque is broken. Probably a mountain goat must have been standing between them; however, only part of the goat's horn survive.

Comparanda: Similar examples are exhibited in the Museum of Van and the Museum of Anatolian Civilisations in Ankara (**fig. 6.6**).¹²

No 4: Idol-shaped clothing-badge (**fig. 6.7, pl. 1, no. 4**).

Provenance: acc. no. 1639.

Measurements: H. 9.5 cm; w. 6.5 cm.

Typological description and state of preservation: Rectangular in shape, a human head is embossed on the plaque, in which the empty spaces were filled with random embossed dots. The face, eyes and nose were made through embossment while the mouth was emphasised through carving.

Conclusion

After several Urartian cities and citadels were destroyed by the Scythians in the late seventh century BC., the population headed for mountainous areas to hide with their possessions. One of these areas is the village of Giyimli (Hırkanis) and its surroundings.¹³ Giyimli is located 68 km southwest of Van (**map 6.1**). A large number of bronze plaques, which were seized during unauthorised excavations conducted in Giyimli in 1971 and called 'the Giyimli Treasure', were sold to antique dealers and various museums.¹⁴ Unlike the typical motifs seen in Urartian royal art, such as citadels, armed infantries and chariots, the bronze plaques in the Giyimli Treasure are examples of folk art which reflect the common needs of society, economic distress in particular. Efforts were made to draw the figures depicted on the plaque.¹⁵ Research conducted on the Giyimli plaques has revealed that all the gods were depicted with a single-horned helmet and sometimes as winged in Urartian art.¹⁶ A similar depiction is seen on clothing badge no. 1 in the Archaeological Museum of Karaman. People were always depicted from in profile in Urartian art. However, the artist in Giyimli showed the figures frontally, though they were able to depict the feet in profile. Similarly, on plaque 2 in the Archaeological Museum of Karaman, the feet of the figure are depicted from the side view while the rest is depicted frontally. Dotted rosettes were used as filling patterns on the plaques in the Archaeological Museum of Karaman. While these are unfamiliar in Urartian art, this motif is frequently seen in Luristan in the eighth/seventh century BC. as well as in the examples in Giyimli.¹⁷ On plaque 3 the flag the woman is carrying is similar to ones seen on the Giyimli offering plaques for the first time in the Urartians.¹⁸ Such flags are prevalent on the Giyimli plaques.¹⁹ The idol-shaped badge, which were regarded as primitive according to Urartian court and urban art, literally reflect the popular religion.²⁰ These kinds of depictions are also seen on offering plaques,²¹ chanfrons,²² cultic furnaces²³ and pectorals.²⁴ In addition to being widely used, this type of idols was also made and blessed by folk communities after the collapse of the Urartian Kingdom.²⁵ Plaque 4 in the

¹³ Belli 2010, p. 386.

¹⁴ Erzen 1972, p. 191.

¹⁵ Özdem 2003, pp. 250–52.

¹⁶ Taşyürek 1977, p. 13.

¹⁷ Erzen 1972, p. 210.

¹⁸ Taşyürek 1978, p. 217.

¹⁹ Taşyürek 1975, p. 155.

²⁰ Belli 1980, p. 40.

²¹ Kellner 1982, pp. 84–93, pl. 6.6.

²² Erzen 1972, p. 207, figs. 38–39; as well as Özgen 1984, p. 136, fig. 11.

²³ Işıklı 2009, p. 342.

²⁴ Kellner 1977, pp. 490–91, pl. 8.

²⁵ Belli 1980, pp. 40–41.

¹¹ Kellner 1982, p. 94, pls. 8–7.

¹² Kulaçoğlu 1990, p. 194, pl. 10.4.



Figures 6.5a-b-6. Two badges with two human figures standing face to face (by M. Ekici, 2011).

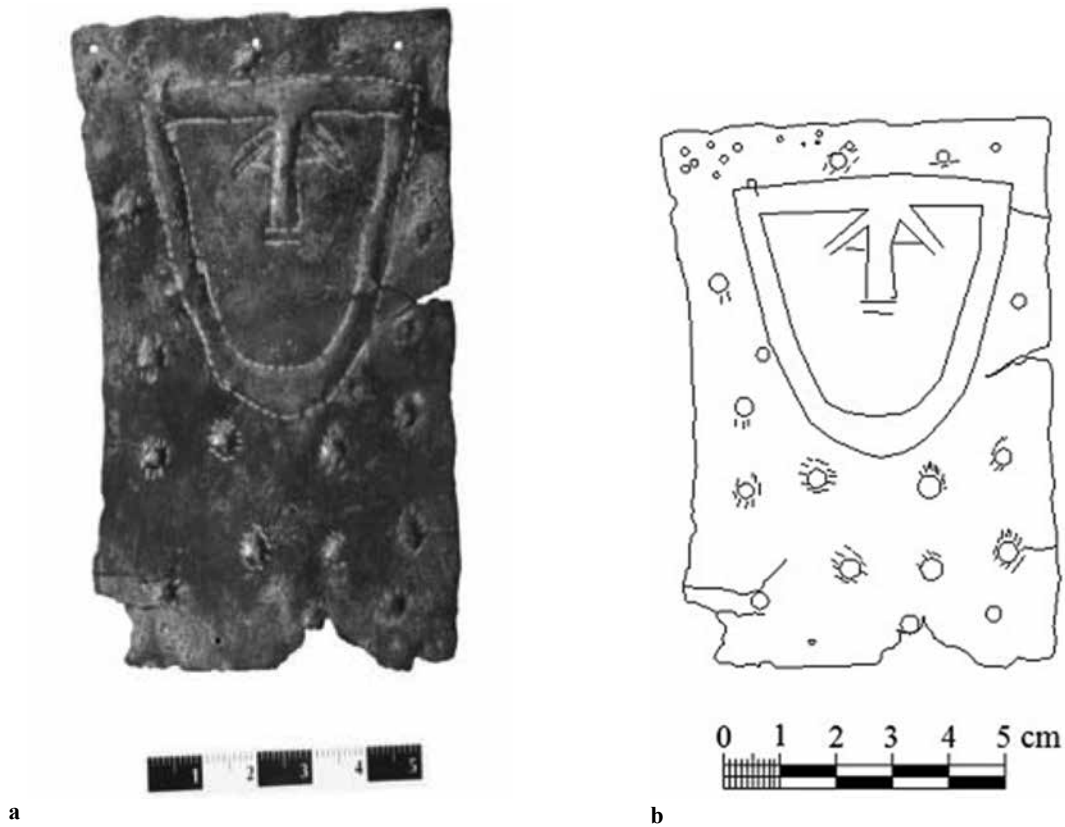


Figure 6.7a-b. An idol-shaped clothing badge (by M. Ekici, 2011).



Map 6.1. Map showing the locations of Giyimli and Van (by M. Ekici, 2011).

Archaeological Museum of Karaman is an example of this type of depictions.

The fact that the crafting techniques and stylistic characteristics of the clothing badges in the Archaeological Museum of Karaman identical to the Giyimli examples indicates that they are pieces of the same whole. The years

the artefacts were acquired by the Archaeological Museum of Karaman correspond to the time when the Giyimli treasure were sold to various museum and antique dealers after the unauthorised excavations conducted in Giyimli. According to these data we can say that the clothing badges at the Archaeological Museum of Karaman originated also from Giyimli.

Part II

Greek, Roman and Byzantine Bronzes from Anatolia

A Bronze Kore Statuette from Artemision in Ephesus

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Abstract: With its height of 24.5 cm, a bronze statuette of an Archaic Greek kore in the Archaeological Museums of Istanbul (acc. no. 2605) is unusually large. It was discovered in the Artemision of Ephesus during the English excavation campaigns of 1904/1905. Its style is similar to eastern Greek statuettes like the ones made of ivory and gold that were also found in the sanctuary of Artemis at Ephesus. The statuette's lower part is shaped like a column and ends in a low base: its formal and stylistic similarities to figurative models probably discovered in the grave of a Lydian goldsmith (today in the Museum of Uşak, Turkey) suggested a similar use for the bronze figurine found at Ephesus. However, a recent analysis shows that it was definitely never intended as a tool.

Keywords: Bronze figurine, Kore, Archaic period, Artemision, Ephesus, Ionia, Lydia, western Turkey.

Özet – Ephesos-Artemision'dan Bronz bir Kore Figürini: İstanbul Arkeoloji Müzeleri'nde 2605 envanter numarası ile saklanan ve 24.5 cm yüksekliğindeki Arkaik Dönem'e ait bir bronz kore figürini olağandışı bir biçimde büyüktür. 1904–1905 yıllarında İngiliz bir ekip tarafından Ephesos-Artemision'da yürütülen kazı çalışmaları sırasında keşfedilmiştir. Tipolojisi, Ephesos Artemis kutsal alanında bulunan fildişi ve altından yapılmış Doğu Yunan heykelciklerine benzerdir. Heykelciğin alt kısmı sütun şeklindedir ve alçak bir kaideyle son bulur: Bu makalede, muhtemelen bir Lydia'lı kuyumcu ustasının mezarında bulunan ve bugün Uşak Müzesi'nde yer alan figüratif kalıplara biçimsel ve stilistik açıdan benzerliğinden dolayı Ephesos'daki bronz heykelcik için de benzer bir kullanım önerilmektedir. Bununla birlikte, son zamanlarda yapılan bir analiz, bu figürinin kesinlikle hiçbir zaman bir araç olarak tasarlanmadığını ortaya koymaktadır.

Anahtar Kelimeler: Bronz figürin, Kore, Arkaik Dönem, Artemision, Ephesos, Ionia, Lydia, Batı Anadolu.

A bronze figurine (**figs. 7.1a-b**)¹ of the Archaic kore type is well-known in literature and was found during the excavations carried out in 1904/05 at the Artemision of Ephesus on behalf of the British Museum in London under the direction of David George Hogarth. In connection with the publication of bronze tools, which may have served as grave goods of a Lydian goldsmith and are now kept in

the Archaeological Museum of Uşak in western Turkey,² the function of the statuette from Ephesus was also considered: it could perhaps be a fully sculptured model for the production of chased figurines from gold or silver sheet.³ In order to clarify this question, the author received a research permit in 2011 to examine the statuette in the Archaeological Museums of Istanbul.⁴ The findspot of the statuette is the area of the *Tempelhof* under which Hogarth called the *central basis*,⁵ where it was found together

¹ Archaeological Museums of Istanbul, acc. no. 2605; Hogarth 1908, 42 and 145f, pl. 14, nos. 1–2; Lippold 1950, p. 47, pl. 12, no. 2; Matz 1950, 162f, pl. 70a; Darsow 1952, p. 56; Akurgal 1961, 214f, figs. 176–177; Bittel 1963, 12; Richter 1968, p. 53, figs. 253–256, no. 78; Naumann 1983, p. 76; Rolley 1984, p. 114, fig. 98; Işık 1986/1987, pp. 48–52, 88 and 92, figs. 3–4; Işık 2001, 90 and 95; Bammer 1988a, 244, fig. 1; Özgen and Öztürk 1996, 62, fig. 142; Gschwantler and Freiberger 2001, 75, pl. 2, nos. 21–22; Weissl 2001, fig. 5b; Treister 2001, p. 63; Klebinder-Gauss 2008, 150f, fig. 128; Atakan 2008, 210, no. 233; and Pülz 2009, 25.

² Özgen and Öztürk 1996; and Treister 2001, pp. 61–67.

³ Özgen and Öztürk 1996, 62, fig. 142; Treister 2001, 63; Atakan 2008, 210; and Pülz 2009, 25.

⁴ I would like to thank the curator at the Archaeological Museums of Istanbul, Ms Mine Kiraz, for her kind support.

⁵ Hogarth 1908, 33–46. In 1987 the central base in the centre of the Archaic *Tempelhof* was exposed by Anton Bammer again, which



Figure 7.1a-b. A bronze figurine, Archaeological Museums of Istanbul, acc. no. 2605 (by K. Gschwantler, 2011).

with numerous valuable offerings made of precious metal and ivory.⁶ After the excavations were completed, other finds were brought to the British Museum for processing, but in 1907 the majority of these finds were taken to the Archaeological Museums of Istanbul.⁷ The following year, the exemplary publication of the finds by Hogarth took place, with the statuette being described in his chapter VIII

led to new interpretations of the building structures combined with consequences for the dating of the Hogarth finds: Bammer 1988, pp. 1–32; Wiplinger and Wlach 1995, pp. 146–49, figs. 194–196; Bammer and Muss 1996, pp. 33–38 and 90; see. Weissl 2008, pp. 52–54; and Weissl 2001.

⁶ After Hogarth 1908, 42–46, the statuette was found on 19 May 1905 outside the northwest corner of the base.

⁷ Cf. Smith 1908, IV.- According to Richter 1968, 53, there supposed to be a cast (facsimile) of the statuette in the British Museum.

among the metal objects made of bronze, lead as well as iron. In this publication Hogarth interpreted this figurine as a goddess (fig. 7.2).⁸

Due to its size with 24.5 cm⁹ and its weight with 1690 g., the fully cast bronze statuette occupies a special position among the finds of Artemision, especially since human statuettes made of bronze are the exception to those made of gold or ivory.¹⁰

⁸ Hogarth 1908, 145f, pl. 14, nos. 1–2. Smith 1908 interprets the ivory statuettes as priestesses; see Muss 2008b.

⁹ Wrong height given by Richter 1968, 53 as 10.5 cm.

¹⁰ See Klebinder-Gauss 2008, p. 150.



Figure 7.2. A bronze figurine, Archaeological Museums of Istanbul, acc. no. 2605 (after Hogarth 1908, pl. 14) (by K. Gschwantler, 2011).

The surface of the statuette has suffered from corrosion as a result of its storage in the swamp soil¹¹ caused by the water. The original patina is completely missing in some areas, especially on the head (fig. 7.3) and the reddish hue suggests a relatively high copper content in the alloy.¹² The top layer has flaked off several times and the face is disfigured by holes and pits (figs. 7.3-4), which means that some details are unrecognizable and severely impaired. The surface suggests that the statuette was electrolytically treated.¹³

¹¹ Hogarth 1908, pp. 35–38, pl. 9, no. 10. Another bronze statuette was oxidized to a shapeless lump and only recognizable after cleaning, Hogarth 1908, 42, probably the statuette on pl. 16, no. 1.

¹² Metal analyzes for this piece are unfortunately not available.

¹³ I do not know whether an electrochemical / electrolytic treatment was carried out during the course of the find processing in the British Museum. The first photographs of the statuette in the publication by Hogarth 1908, pl. 14, nos. 1–2 (here fig. 2) conform with today's appearance. Such an



Figure 7.3. A bronze figurine (right profile), Archaeological Museums of Istanbul, acc. no. 2605 (by K. Gschwantler, 2011).



Figure 7.4. A bronze figurine (left profile), Archaeological Museums of Istanbul, acc. no. 2605 (by K. Gschwantler, 2011).

The female figure stands upright with closed legs in strict frontality with the head and upper body bent slightly forward. The feet were not executed. The head is disproportionately large, the arms with the oversized hands hang down to the sides and lie close to the body. The clothing consists of a long sleeve *chiton* that reaches to the floor and a cloak-like veil that is pulled over the head,¹⁴ leaves the ears free and rests like a cap over the forehead. The *chiton* is girded with a wide belt that constricts the waist, which emphasizes the belly and is especially clear in the side view (fig. 7.2). The dovetail-shaped sleeves of the *chitons* extend to the elbows. The folds on the upper body follow the V-shaped neckline at an acute angle, while on the right side of the lower body they run strictly vertically like the fluting of a column, the ridges of the folds are not sharp-edged, but rounded. The middle of the *chiton* is accentuated by a wide border, which is shifted slightly to the left and is decorated with horizontal grooves. The veil rests on the upper arms and falls unstructured to the floor in the back (fig. 7.1b),¹⁵ the edge of the veil is indicated as a fine ridge on the sides. On the left side, the veil is pulled through under the arm and pinned under the belt in a small wad,¹⁶ whereby the folds of the *chiton* on the left side are covered by the smooth veil and are not visible. In the relatively fleshy, oval face, the large, protruding nose, the slightly bulging eyeballs (the right one has largely been destroyed by corrosion), the broad lips of the large mouth that seems to smile slightly, and the powerful chin are the determining elements. The large ears were decorated with a rosette in the upper area and a washer in the lower area,¹⁷ whereby, due to the poor state of preservation, it is no longer possible to decide whether both may have formed a pair of earrings – unfortunately both the ear and the ear are on the left jewelry fell victim to corrosion.¹⁸ This also applies to the lower end of the statuette (figs. 7.5a-d), on which the vertical folds do not seem to be worked out to the lower edge, but rather a narrow, plinth-like and slightly drawn-in strip parts of the surface of ca. 0.8–1.0 cm height, however, have flaked off in this area as well. The underside of the statuette (fig. 7.6) is flat and almost circular (diam. 2.7 cm); in the centre is a hole with partially broken edges (diam. ca. 1.3 cm, depth ca. 0.4 cm).

intervention would be possible in terms of time, since the electrolytic method for preserving bronzes was first published by Friedrich Rathgen in 1889: Rathgen 1889, pp. 196–98.

¹⁴ According to Hogarth 1908, 146 the veil is tied with a bandage.

¹⁵ Richter 1968, 53 *the hair hangs down as a solid, quadrangular mass at the back* – but no hair can be seen under the veil on the back.

¹⁶ The veil cannot, as Bammer 1988a, 244 and Klebinder-Gauss 2008, 150 believe, be lifted up at the left hem and tucked into the belt, since otherwise the veil would not fall smoothly to the ground on the back, but would be pulled up and shifted to the side.

¹⁷ Hogarth 1908, 146 and Atakan 2008, 210 do not see a disk here, but a large ring that is pulled through the earlobe. Disc-shaped earrings have not yet been found in the Artemision; but cf. for the ivory statuette with a rod-shaped attachment in the Archaeological Museums of Istanbul (acc. no. 2596), Richter 1968, p. 54, figs. 259–262, no. 81; Must 2008b, 104–113, figs. 62a-b. For two female heads from the figurative frieze of the pillars of the temple of Croesus, cf. Richter 1968, pp. 11 and 56, figs. 263–266, nos. 82–83; Bammer and Muss 1996, 52f, fig. 53.

¹⁸ According to Hogarth 1908, 146 there is a small hole for the earring in the area of the earlobe, but in my opinion this was caused by corrosion, as was another hole in the area of the cheek (fig. 4).



Figure 7.5a-b. An ivory figurine, Archaeological Museums of Istanbul, acc. no. 2595 (by K. Gschwantler, 2011).

The closest stylistic and formal parallels to this bronze statuette can be found among the ivory and gold statuettes from Artemision in Ephesus. Examples are two gold statuettes – one made in full cast (figs. 7.10a-b),¹⁹ the other made of sheet gold (figs. 7.11a-b)²⁰ – from the Austrian excavations, as well as an ivory statuette (figs. 7.7a-b)²¹ from the Hogarth excavation. What all

¹⁹ Archaeological Museum of Ephesus in Selçuk, acc. no. 1/42/93. Gschwantler and Freiberger 2001, pp. 81–83, pl. 2, no. 11–20, fig. 17a-c; Gschwantler and Freiberger 2008, pp. 122–24, figs. 3–4, nos. 13–19; Bühler and Pülz 2008a, pp. 168–72, fig. 141; Pülz 2009, pp. 44–45 and 216, pl. 3, colour pl. 3, no. 6.

²⁰ Archaeological Museum of Ephesus in Selçuk, acc. no. 2/59/80. Gschwantler and Freiberger 2001, pp. 73–81, pl. 1, figs. 1–2, nos. 1–10; Gschwantler and Freiberger 2008, pp. 119–21, figs. 1–2, nos. 5–12; Bühler and Pülz 2008a, pp. 168–72, fig. 140; Pülz 2009, pp. 42–43 and 214, pls. 1–2, colour pls. 1–2, no. 1.

²¹ Archaeological Museums of Istanbul, acc. no. 2595. Smith 1908, p. 158, pl. 24, no. 3; Akurgal 1961, p. 198, figs. 160–161; Richter 1968, 53f, figs. 257–258, no. 80; Işık 1986/1987, 61, fig. 12; Muss 2008a, pp. 104–12, fig. 61; Seipel 2008, p. 161, no. 9 (by N. Atakan).- The statuette is dated to the first quarter of the sixth century BC. An ivory statuette from the Austrian excavations (Archaeological Museum of Ephesus in Selçuk, acc. no. 176/38/81), clad in a belted *chiton*, the vertical folds of which extend to the floor as in the bronze statuette, still belongs to the



a



b



c



d

Figure 7.6a-d. A bronze figurine (foot part: front - right profile - back - left profile), Archaeological Museums of Istanbul, acc. no. 2605 (by K. Gschwantler, 2011).



Figure 7.7. A bronze model for a female statuette, Museum of Uşak, acc. no. 1.173.96 (by K. Gschwantler, 2011).

three have in common is the strict frontal posture and the specific veil for the drapery of the bronze statuette, albeit without the detail of the garment that is tucked into the belt, which covers part of the *chiton*. In the Greek marble sculpture, this motif²² is found for the first time on the two consecrated statues of Cherymyes from the Heraion of Samos,²³ in which the veil is also wrapped around the left hip and tucked into the belt. These two statues are dated *ca.* 560 BC. around the same time with the accession of Croesus and the start of construction of the temple of Croesus.²⁴ This dating around 560 BC. is already inferred by Wolfgang Darsow for stylistic reasons for our bronze statuette from Ephesus.²⁵ In contrast to this, Fahri Işık dates the bronze statuette as well as the two gold statuettes (figs. 7.10-11) to the seventh century.²⁶

seventh century: Bammer 1985, p. 41, figs. 1–3; Işık 1986/1987, p. 51, fig. 7; and Seipel 2008, p. 165, no. 114 (by U. Muss).

²² This motif is derived from the former Hittite-Phrygian Cybele representations, Naumann 1983, pp. 75–77; see Işık 1986/1987 *passim*.

²³ Freyer-Schauenburg 1974, pp. 21–27, pls. 5–6, no. 6 (Louvre, acc. no. MA 686; 27–31, pls. 7–8, no. 7 (Antikemuseen in Berlin, acc. no. 1750).

²⁴ Ohnesorg 2007, pp. 127–29.

²⁵ Darsow 1952, p. 56; see: Richter 1968, p. 53 (in the early second quarter of the sixth century BC.); Rolley 1984: 114 (570–560 BC.); Treister 2001, 63 (570–560 BC.); and Klebinder-Gauss 2008, 155 (first half of the sixth century BC.).

²⁶ Işık 1986/1987, pp. 59–62; Işık 2001, p. 95 (last quarter of the seventh century BC.); see: Matz 1950, 162f (end of the second quarter of the seventh century BC.); Weissl 2001 (second half of the seventh century



Figure 7.8. A bronze model for a female statuette, Museum of Uşak, acc. no. 1.174.96 (by K. Gschwantler, 2011).

It is well known that in the Greek cultural sphere of the later seventh and sixth centuries BC. the use of mechanical aids, initially taken over from the Orient and through the mediation of Phrygian and Lydian workshops, which allowed mass-production, was a common practice in the manufacture of objects from bronze and precious metal.²⁷ So far, neither goldsmiths nor bronze workshops in Ephesus and in the area of Artemision have been proven with certainty, but there is much to be said for the existence of such workshops on site.²⁸

Singular types of jewelry known only from Artemision, such as the well-known four lion's head *fibulae*, match so precisely in terms of the elaborate decoration and

BC.); Atakan 2008, p. 210 (end of the seventh century BC.); and Pülz 2009, p. 25 (late seventh century BC.). For a discussion of the diverging time approaches see Darsow 1952, p. 56, note 92; Işık 1986/1987, pp. 59–62.

²⁷ See: Bol 1985, 70, 78f, and 112–117; Bühler and Pülz 2008a; Bühler and Pülz 2008b.

²⁸ On local bronze workshops in Ephesus: Klebinder-Gauss 2003; Klebinder-Gauss 2007, 204; Klebinder-Gauss 2008, p. 152; on gold workshops in Ephesus: Rudolph 1998, pp. 105–10; Bühler and Pülz 2008, p. 170; Pülz 2009, pp. 23–25.



Figure 7.9a-b. A gold figurine, Museum of Efes in Selçuk, acc. no. 1.42.93 (by K. Gschwantler, 2011).

dimensions that the use of mechanical aids (positive and negative models, etc.) was mandatory for Ephesian productions,²⁹ especially since no Greek sanctuary in the Archaic period can compete with the variety and quantity of gold jewelry found in the Artemision during the English and Austrian excavations.³⁰

The statuette made of sheet gold (figs. 7.11a-b) is composed of two parts, the body with the facial skull and the calotte, with the open back overlapping and the

calotte being soldered to the head with a crown seam.³¹ Two techniques are conceivable for the production of the statuette: it can be ‘freely’ driven (*repoussée* technique) or produced using a positive or negative model in pressed sheet metal technique.³² In the above-mentioned bronze tools in the Museum of Uşak, both types can be found not only for making jewelry components, but also for making statuettes. In addition to semi-sculptural models, there are also fully sculptural figurative models, two reclining rams, a reclining goat³³ and three female figures dressed in a *chiton*, two of which are shown standing (figs. 7.8-9)

²⁹ Gschwantler and Freiberger 2008; Bühler and Pülz 2008a, p. 167; Pülz 2009, 224f., pls. 7–10, colour pls. 6–7, nos. 38–41; see also Bühler and Pülz 2008b; and Scheich 2001.

³⁰ See Bühler and Pülz 2008a, 167f.

³¹ Gschwantler and Freiberger 2001, pp. 75–81, figs. 1–2.

³² Gschwantler and Freiberger 2001; Bühler and Pülz 2008a, p. 168.

³³ Özgen and Öztürk 1996, nos. 189–191; Treister 2001, 61, figs. 4–5.



Figure 7.10a-b. A gold figurine, Museum of Efes in Selçuk, acc. no. 2.59.80 (by K. Gschwantler, 2011).

and one seated.³⁴ Due to the stylistic and formal similarity between these bronze tools and the Ephesian statuette, they could also be used as a positive model in the function of a tool for the production of statuettes, as İlknur Özgen and Jean Öztürk also considered this possibility in their publication of the finds from Uşak in Lydia.³⁵

³⁴ Özgen and Öztürk a.O. 62, nos. 192–194; Treister a.O., figs. 6–7.

³⁵ s.o. Anm. 3.



Figure 7.11. A bronze figurine (bottom side), Archaeological Museums of Istanbul, acc. no. 2605 (by K. Gschwantler, 2011).

In my opinion, however, the renewed examination of the statuette in Istanbul rules out such a technical function for several reasons. The fully plastic (positive) human and animal-shaped models in Uşak, which were made around the turn of the sixth to fifth century BC., are fully cast bronze figures, which usually have a cone-shaped handle for better handling or another type of handle with which the model could also be clamped in a workbench. The figure is always cast in one piece with the handle, the height of the female figures is 6 to 7 cm (with the handle 8.4–10.3 cm), far below that of the Ephesian statuette (24.5 cm). The lower, pedestal-like end of the Ephesian statuette (figs. 7.5a-d) is damaged by corrosion, but the edge does not correspond to a breaking edge, so that it can be ruled out that an originally longer (handle) pin could have been here. The statuette was therefore attached to a base or a pedestal, whereby it is initially irrelevant whether the folds of the *chiton* originally ran down to the floor or whether a narrow (slightly indented?) strip above the lower edge has remained smooth. Due to the small height of this strip, with which the statuette was embedded (potted?) in a base, it was also fixed with a small peg, as indicated by the hole on the underside (fig. 7.6). The statuette was therefore intended to be raised on a pedestal, at least when it was made, although the question of whether it was consecrated in the Artemision when raised on the pedestal cannot be answered.

The knowledge gained from these observations leads us back to the remarks of Hogarth in his first publication of this statuette: *underneath the figure is a shallow mortified socket, showing that it once stood on a pedestal or other object*³⁶ – a use of the bronze statuette from the Artemision of Ephesus as a model for the reproduction of other statuettes made of gold or silver sheet was not intended when it was made. The position and effect of the statuette

³⁶ Hogarth 1908, p. 145; see. Klebinder-Gauss 2008, 150f. Hogarth is obviously also thinking of the possibility of using it as an attachment on a device, but in my opinion the high weight of the statuette alone speaks against such a function.

must therefore have essentially corresponded to the impression given by early archive recordings of a former position in the Archaeological Museums of Istanbul: with the lower smooth zone set into a pedestal.³⁷

Translated from German into English
by E. Lafli

³⁷ See. Rolley 1984, p. 114, fig. 98; and Işık 1986/1987, p. 50, figs. 3–4.

Archaic Bronzes from Nif (Olympus) Mountain in Ionia (Western Turkey)

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Abstract: In this study, bronze finds dated to the Archaic period from the excavations in Nif (Olympus) in Izmir are examined. These include military equipment, accessories and objects of daily use. Dating criteria, contexts, typologies and stylistic parallels of these examples will be evaluated. Most of the metal findings from Nif Mountain are arrowheads from Karamattepe. Types, origins and especially chronometric dating of these iron and bronze arrowheads, which were assessed by comparison with limited numbers of Balıcaoluk samples, are controversial.

Keywords: Bronzes finds, arrowheads, *fibulae*, Archaic period, Nif (Olympus) Mountain excavations, Karamattepe, Balıcaoluk, Ionia, western Turkey.

Özet – Nif (Olympos) Dağı Kazılarında Arkaik Bronzlar: Bu çalışmada İzmir’de bulunan Nif (Olympos) kazılarında Arkaik Dönem’e tarihlenen bronz buluntular incelenmiştir. Bunlar askeri teçhizatı, aksesuarları ve günlük kullanım nesnelerini içerir. Tarihlendirme kriterleri, bağlamlar, tipolojiler ve biçimsel paralellikler incelenecektir. Nif Dağı’nın maden buluntularının çoğu Karamattepe ok uçlarından oluşmaktadır. Sınırlı sayıda Balıcaoluk örneği ile karşılaştırılarak değerlendirilen bu demir ve bronz ok uçlarının türleri, kökenleri ve özellikle kronometrik tarihlendirmeleri tartışmalıdır.

Anahtar Kelimeler: Bronz buluntular, okuçları, *fibula*, Arkaik Dönem, Nif (Olympos) Dağı kazıları, Karamattepe, Balıcaoluk, Ionia Bölgesi, Batı Anadolu.

The Nif (Olympus) Mountain Archaeological Excavation in Izmir (**fig. 8.1**) was directed by Professor Elif Tül Tulunay.¹ In this study, bronze finds, dated to the Archaic period from the excavations, are presented. These include accessories, objects of daily use and military equipments. Their dating criteria, contexts, typologies and analogy of bronze artefacts will be studied.

At Karamattepe, jewellery such as rings, earrings, hair rings (**fig. 8.2** M.09–105) was found (**fig. 8.2**). Rings change function with their diameter or size. Similar examples of this jewellery has been found in Sardis, Ephesus, Lindos, Olynthus and some Archaic Ionian *necropoleis*². Also found at Karamattepe were casting moulds for sandal –

or boat – shaped earrings, known as Anatolian or Lydian type earrings (**fig. 8.2** M.06–09) from Sardis; this shows the presence of local manufacturing.

Different samples of pins (pins with knob) which is utilized like dress accessories have been found at Karamattepe (**fig. 8.3**). All similar finds to these pins are dated between the end of eighth century BC. and sixth century BC.³

Both complete and incomplete *fibulae* and pieces of a *fibula* (**figs. 8.4-5**) were found in the Karamattepe and Balıcaoluk sectors of the excavation. A *fibula* (M.09–120) found in Karamattepe sector (**fig. 8.4**) is leech-shaped and similar to an example in the Tire Museum⁴. M.06–62 and

¹ I thank Professor Elif Tül Tulunay who shows an extraordinary effort to improve working conditions of Nif (Olympus) Mountain research and excavations and has given me the permission to study metal finds of the excavations. For the excavations at Olympus cf. Tulunay 2006, pp. 189–200; Tulunay 2007, pp. 35–362; Tulunay 2008, pp. 79–98; Tulunay 2009, pp. 411–26; Tulunay 2010, pp. 387–408; Tulunay 2011, pp. 405–23.

² Vinogradov 1994, p. 26; Blinkenberg 1931, nos. 271–275; Robinson 1941, nos. 179–224, 303–304, 307–318; Hürmüzlü 2007, pp. 341–50;

Utili 1999, nos. 877–884; Raubitschek 1998, nos. 233–39, 248–249, 254–58; Scheich 2008, nos. 44–47, 49–50; Philipp 1981, nos. 398, 721–730.

³ Bingöl 1999, nos. 220, 222; Yıldırım 1989, pp. 91–96; Raubitschek 1998, nos. 181–187; Philipp 1981, no. 64.

⁴ Gürlü 2004, no. 9. Also cf. Lafı and Buora 2006 (Cilician *fibulae*) 2012 (*fibulae* from Ödemiş nearby Tire).

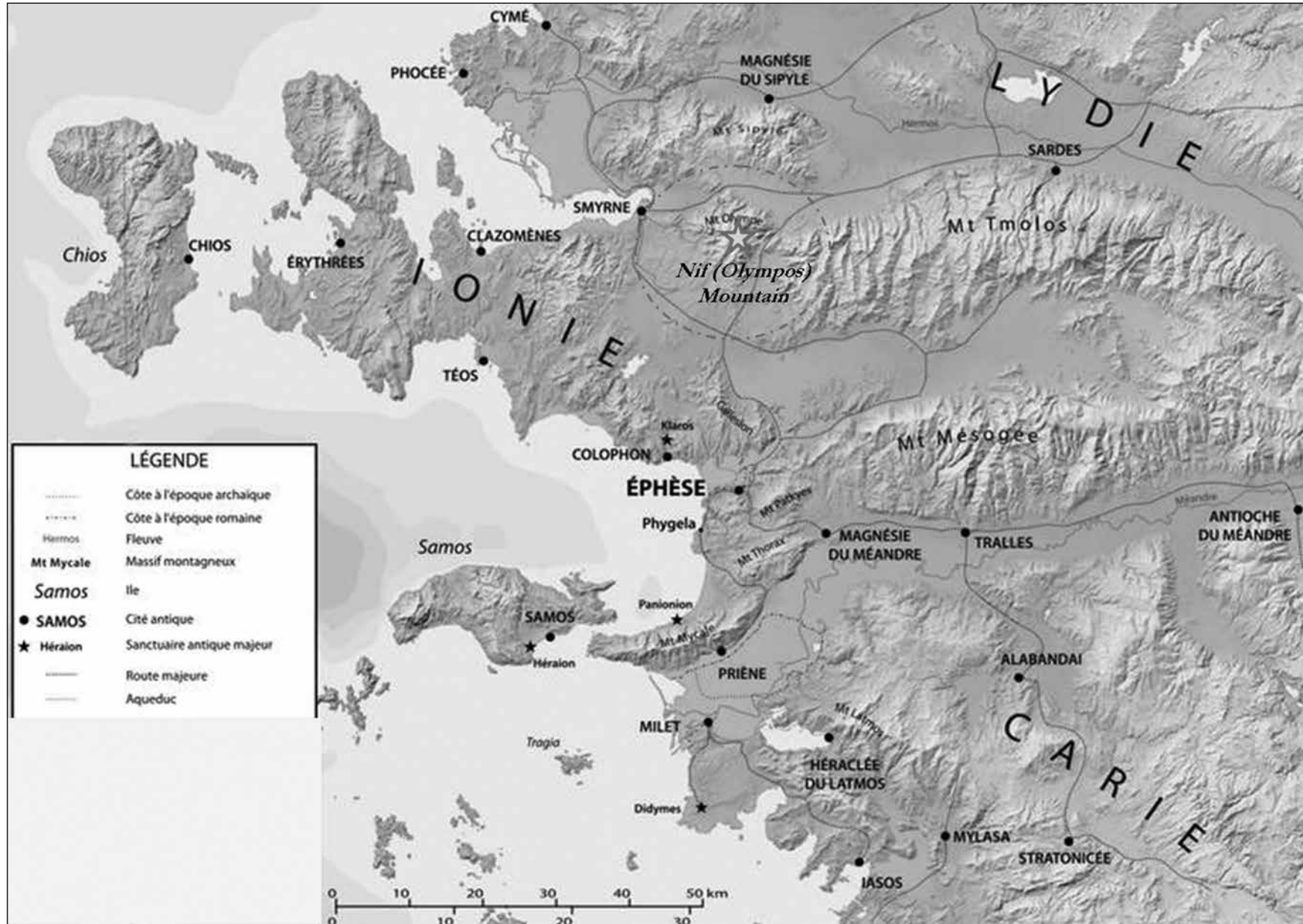


Figure 8.1. Location of Nif (Olympus) Mountain in Izmir (by D. Baykan, 2011).

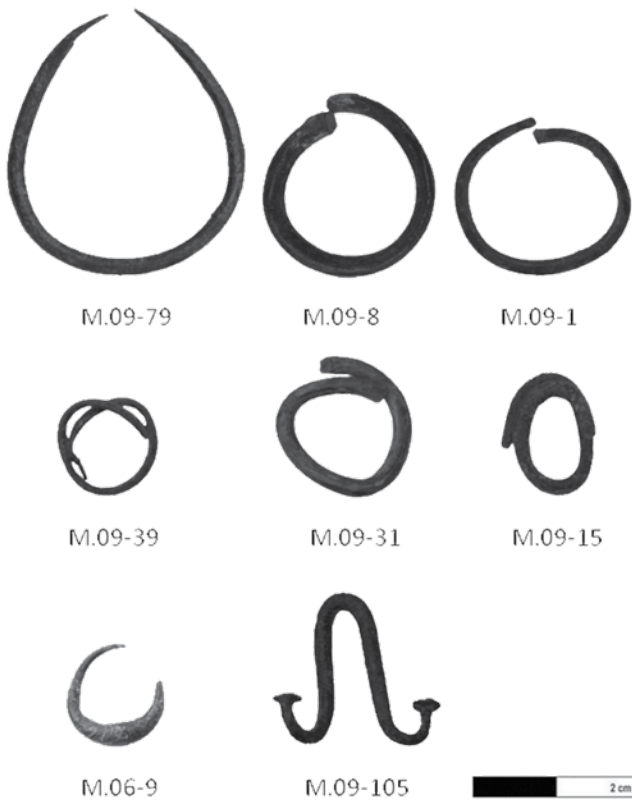


Figure 8.2. Rings, earrings and hair rings from Karamattepe (by D. Baykan, 2011).

M.09-25 (fig. 8.4) are pieces of a similar *fibula* to M.09-120; M.07-4 is probably a main *fibula* body. Another, entire *fibula* (M.10-60) found at Ballicaoluk sector (fig. 8.5) has parallels in finds from Lindos,⁵ Assos⁶ and Tire⁷ and dated to seventh-sixth centuries BC. *Fibulae* are dated between



Figure 8.4. Leech-shaped *fibulae* from Karamattepe (by D. Baykan, 2011).

the end of the eighth century BC. and sixth century BC., as are Karamattepe's pins. There was also a small object (M.08-78) (fig. 8.6) found in Karamattepe which, although



Figure 8.3. Needles (knob pins) from Karamattepe (by D. Baykan, 2011).

⁵ Blinkenberg 1931, nos. 111-12.

⁶ Utili 1999, no. 921.

⁷ Gürlü 2004, no. 3.



Figure 8.5. An entire *fibula* (M.10-60) found at Ballicaoluk sector (by D. Baykan, 2011).

its purpose is unclear at first glance, is very similar to a *fibula*. For this reason, given the evidence of technology of *fibula* manufacturing, I can suggest that this object was an unfinished *fibula* in stage of casting (fig. 8.6).

Other unexpected and surprising finds from Karamattepe are a piece of a bronze belt (M.10-48) (fig. 8.7), parallels to which are rare but are known from Ephesian Artemision, Gordium, Hasanlu and Kerkenes⁸ and east originated bronze relief piece⁹ (M.09-42) (fig. 8.8).

Most of the metal findings from Nif (Olympus) Mountain are arrowheads from Karamattepe. The types, origins and especially chronometric dating of these iron and bronze arrowheads, which were assessed by comparing with limited numbers of Ballicaoluk samples, are controversial. The arrow-heads found in Karamattepe have been catalogued into seen types. The first four types are iron samples (fig. 8.9) and last three bronzew samples (fig. 8.10). Certain arrow heads, which were found in Ballicaoluk in 2009 and 2010, are important as they are similar to the ones in Karamattepe. Along with the samples of Types 1, 2, and 5, there is a new triquetrous, short trilobated and socketed type, which is called Type 8. It is difficult to date, and even to created any analogy between, 256 iron arrow heads found in Karamattepe and grouped under the first four types as the iron pieces found in the Anatolia were ignored. For this reason, 256 iron arrow heads found in Karamattepe¹⁰ will be evaluated with the ten bronze arrowheads which have been sorted into three main groups.

Six bronze bilobated and socketed arrowheads, named Type 5, have been found in Karamattepe. Similar examples have been found in Smyrna¹¹ and Sardis,¹² where it was



Figure 8.6. An unfinished *fibula* (by D. Baykan, 2011).

⁸ Klebinder-Gauss 2008, pp. 297–98; Philipp 1981, no. 382; Young 1957, p. 327.

⁹ Guralnick 2004, pp. 189–222; Kunze 1950; Calmayer 1973.

¹⁰ Baykan 2011a; Baykan 2012a; and Baykan 2015.

¹¹ Akurgal 1993, pl. N-3.

¹² Greenewalt 1997, p. 15.



Figure 8.7. A piece of bronze belt from Karamattepe (by D. Baykan, 2011).



Figure 8.8. A relieved bronze fragment produced in the Near East (by D. Baykan, 2011).

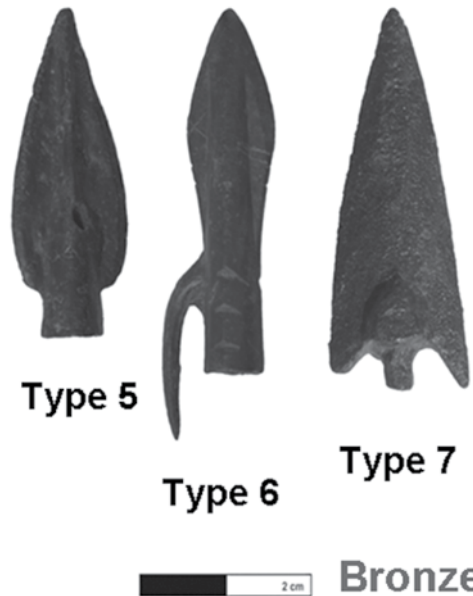


Figure 8.10. Three bronze arrow heads from Karamattepe (by D. Baykan, 2011).

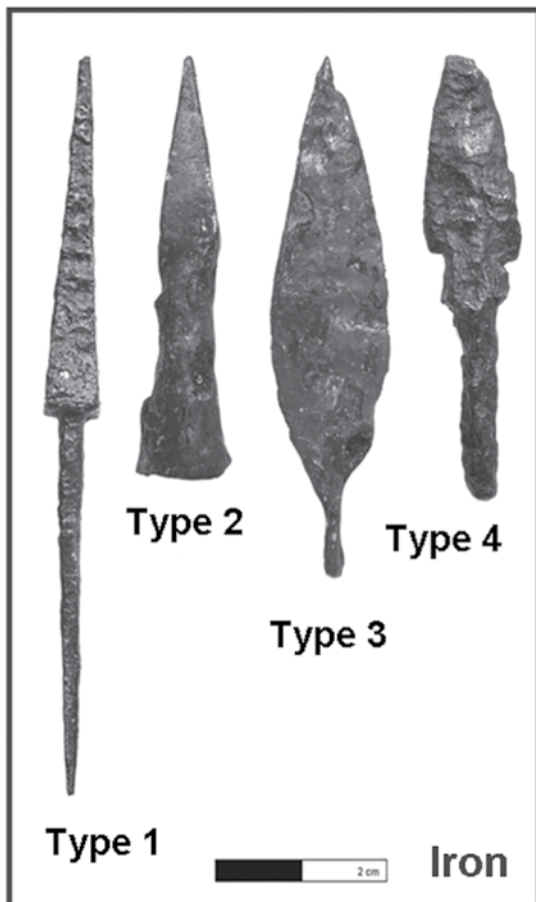


Figure 8.9. Four iron arrow heads from Karamattepe (by D. Baykan, 2011).

located in Sardis' Persian demolition layers. Three of the bilobated, socketed and barbed bronze arrowheads (Type 6), which were used commonly, are also called 'Scythian-type' arrowheads in numerous publications, because these are not only bronze but also associated with a tribe. Similar examples of type 6 have been found in the Artemision of Ephesus,¹³ İmirler,¹⁴ Çavuştepe,¹⁵ Ayaniş,¹⁶ Kerkenes¹⁷ and Sivas.¹⁸

Type 7 comprises a single targeted and barbed bronze arrowhead. Similar examples have been found in Corinth¹⁹ and Delos.²⁰ This type of Ayaniş²¹ findings is the ones which are

¹³ Klebinder-Gauß 2007, p. 173, nos. 892–893: "Da Tüllenpfeilspitzen im ägäischen Raum bislang vor der zweiten Hälfte des 7. Jahrhunderts nicht nachgewiesen sind, wird man auch für Kat. 890–894 aus dem Artemision eine entsprechende Datierung annehmen müssen".

¹⁴ Bilgi 2004, p. 10.

¹⁵ Erzen 1988, pp. 45–50.

¹⁶ Çilingiroğlu 2005, pp. 63–66.

¹⁷ Schmidt 1929, pp. 269–70.

¹⁸ Ökse 1994, pp. 24–32.

¹⁹ Davidson 1952, nos. 1512–14.

²⁰ Deonna 1938, p. 208.

²¹ Çilingiroğlu 2005, p. 65.



Figure 8.11. Iron arrow head, Type 8 (by D. Baykan, 2011).

connected to the East Anatolia by offering as Urartian during evaluation. Types 5, 6 and 7 can be dated from the eighth to the sixth centuries BC. by analogy to Eastern and Anatolian samples. Type 8's dating, origin and distribution have not yet been conclusively decided, but it can be dated between the sixth and the fourth centuries BC. (**fig. 8.11**) with similar examples from Delos,²² Corinth²³ and Olynthos.²⁴

When the typology and the historical geography data is taken into consideration, as the military finds from Nif are similar with the finds from the demolition layer of Persian Sardis, it is reasonable to associate the battle in Karamattepe with the conquest of Sardis between 546–539 BC. Other Karamattepe and Ballicaoluk bronzes discussed in this paper are dated between the end of the eighth century and the sixth century BC.

²² Deonna 1938, p. 208.

²³ Davidson 1952, no. 1520.

²⁴ Robinson 1941, nos. 2103–2114; type G III.

Restorations and Conservation of Bronzes from Nif-Olympus in Ionia (Western Turkey)

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Abstract: Archaeological excavations at the Nif (Olympus) Mountain in Izmir were directed by Professor Elif Tül Tulunay. In this brief paper restoration and conservation work of the ancient bronzes of this site are presented which was undertaken by myself in 2009–2010 with the assistance of Gülten Aksu, Burak Çamlıbel, Koray Pekak, Yeşim Kocaman, Dilek Arabacı and Ezgi Çınar. In this paper causes of deterioration for the excavated bronzes from Nif are illustrated with some examples.

Keywords: Bronze artefacts, restoration, conservation, Nif (Olympus) mountain excavations, Karamattepe, Izmir, western Turkey.

Özet – Nif-Olympos Kazıları Bronz Buluntularının Restorasyonu ve Konservasyonu: İzmir’deki Nif (Olympos) Dağı arkeolojik kazıları Prof. Dr. Elif Tül Tulunay tarafından yürütülmekte idi. Bu kısa makalede, üretim teknikleri veya çevre koşulları nedeniyle bozulan antik bronzların doğru restorasyonu ve uygun şekilde korunması tanıtılmaktadır. 2009–2010 yıllarında Nif (Olympos) Dağı Kazıları’nın restorasyon ve konservasyon projesi tarafımdan, Gülten Aksu, Burak Çamlıbel, Koray Pekak, Yeşim Kocaman, Dilek Arabacı ve Ezgi Çınar’ın yardımlarıyla gerçekleştirilmiştir. Bu makalede Nif (Olympos) Dağı arkeolojik kazılarından ele geçen bronz eserlerin bozulmaları ve bozulma nedenleri birçok örnekle gösterilmiştir.

Anahtar Kelimeler: Bronz buluntular, restorasyon, konservasyon, Nif (Olympos) Dağı kazıları, Karamattepe, İzmir, Batı Anadolu.

The Nif (Olympus) Mountain Archaeological Excavation in Izmir was directed by Professor Elif Tül Tulunay.¹ I would like thank Professor Tulunay for giving me the permission to conduct restoration and conservation works of the excavations. In this paper restoration and conservation of the ancient bronzes from Nif are examined briefly. Deterioration and causes of deterioration for the excavated bronzes from Nif are illustrated with some examples. Restoration and conservation work at the Nif (Olympus) Mountain excavations is conducted by myself in 2009–2010 with the assistance of Gülten Aksu, Burak Çamlıbel, Koray Pekak, Yeşim Kocaman, Dilek Arabacı and Ezgi Çınar.

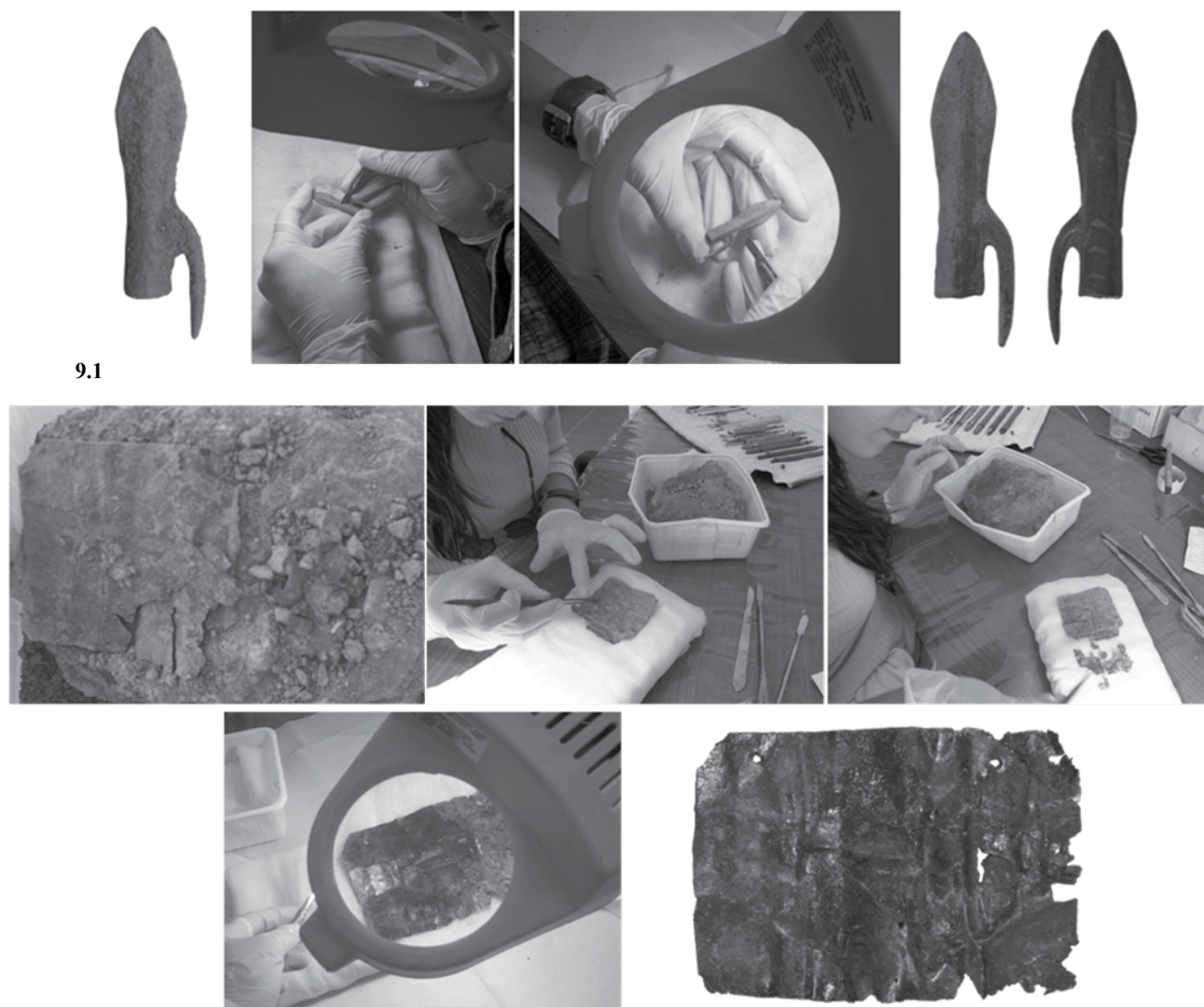
As very well-known, archaeological finds are affected by soil humidity, salts and acids. Metal minerals found naturally in mine are oxidized. When metals are melted and refined,

chemically they are less stable. When they are under the soil, they are oxidized or corroded with soil humidity and oxygen; in fact, they begin to their return natural state. With high alkali or acidic ambient of the findspot and sodium chloride corrosions increases. Corrosion layers are formed by chemical reaction with carbonate and sulfate salts of the metal. Corrosion creates some pits on the surface. Layers of metal corrosion prevent sometimes further damages. This varies with the findspots of each metal pieces and their state of preservation. Most of the metal finds at the Nif (Olympus) Mountain are seriously damaged.

Broadly speaking, bronzes are copper alloys in which the major alloying element is not zinc or nickel. Archaeological metal artefacts are susceptible to accelerated corrosion reactions once they are excavated and exposed to adverse environmental conditions.² Corrosion with the name of

¹ For the excavations at Olympus *cf.* Tulunay 2006, pp. 189–200; Tulunay 2007, pp. 35–362; Tulunay 2008, pp. 79–98; Tulunay 2009, pp. 411–26; Tulunay 2010, pp. 387–408; as well as Tulunay 2011, pp. 405–23.

² For the examples metal objects *cf.* a bronze weight from Hadrianopolis in Paphlagonia: Lafli and Christof 2012, p. 110, fig. 99; or a Byzantine



Figures 9.1-2. Bronze objects from Nif-Olympus and their conservation (by C. Baykan, 2011).

‘bronze disease’ or ‘cancer’ is a chemical change because of chlorine ions. When the conditions are not changed or no measures are taken, corrosion develops and takes the form of cancer.³ This is influenced by chemical exchange of copper ions. Cancer is a light green granular appearance in the surface of the bronze object. Unfortunately, only cleaning of the corrosion which has a granular appearance is not sufficient to remove all of it. ‘High Relative Humidity’ (RH) levels in a museum environment combined with high pollutant concentrations increase the corrosion rate of metals.

Because of their deceptively stable appearance, archaeological metals must be carefully examined before cleaning. A documentation for their condition before any cleaning is essential, since they can change dramatically during conservation treatment. The examination can be improved by using low power magnification, such as a magnifying glass, jeweler’s loupe or microscope.

Close observation of corrosion may reveal important deterioration products or fabrication details, including tools marks or original surface decoration. Pseudomorphs, which are the associated burial materials such as textiles or cordage within the corrosion layers may also be revealed.⁴

The focus of metal conservation has shifted in recent years from intensive cleaning and corrosion removal to corrosion prevention and stabilisation.⁵ Freshly excavated material may develop the bronze disease in a matter of hours, as a result of the drying out of a wet or damp crust. At times, superficial corrosion is carefully removed⁶ with soft bristle brushes, wood probes, metal needles, dental picks, tooth brushes, scalpels and other small hand tools (fig. 9.1). Ethanol or a small amount of water may be used with small brushes or cotton swabs. If water is used in cleaning, the

lead seal from the same site: Lafli and Zäh 2009, p. 644, pl. 7, figs. 5a-b.
³ Özen 2000, p. 178.

⁴ Wharton and Kökten Ersoy 2002, p. 3.

⁵ Herold 1990, pp. 55 and 73; as well as Cronyn 2002, pp. 191–93 and 224–25.

⁶ Scott 2002, pp. 357–61; as well as Wharton and Kökten Ersoy 2002, p. 3.

artefact must be thoroughly dried before it is placed in a sealed container.

Within the excavation project of the Nif (Olympus) Mountain a restoration and conservation laboratory has been inaugurated. Sometimes bronze finds were found at this site in many pieces. In this situation, it was necessary to assemble all pieces after cleaning for not to lose any fragments (**fig. 9.2**). In these applications, it must be used a reversible adhesive like paraloid B7⁷ (%15) and Japanese paper to support.

⁷ Koob 1986, pp. 7–14; and Koob 2006, pp. 50–52.

Lost Bronzes of Asia Minor: Equestrian Images and Public Place

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Abstract: Commemorative bronze equestrian statues of rulers and important individuals from the Hellenistic period were widely distributed throughout the Mediterranean world. None of these pieces has survived to the present day, except for certain inscribed statue bases along with the corresponding literary record. Early Hellenistic honorific decrees issued by the Greek cities of Anatolia seem to partially complete the picture as to how the statues of rulers on horseback became an integral part of official royal portraits. The equestrian model was probably derived from the depiction of a victorious leader who, following Alexander's example, led his army into battle on horseback and conquered his enemies. Persons thus awarded were generally kings and members of their families, or royal officials designated as guests or friends of rulers. Even though today these bronzes are irrevocably lost, their significance can be seen by the enhancement of similar types of monuments in subsequent periods.

Keywords: Bronze statue, equestrian, honorific dedication, Hellenistic period, Asia Minor.

Özet – Anadolu'nun Kayıp Bronz Heykelleri: Süvari Tasvirleri ve Halka Açık Alanlar: Hellenistik Dönem'in yöneticileri ve önemli kişileri anısına yapılan atlı süvari bronz heykelleri Akdeniz dünyasında oldukça yaygın idi. Bu eserlerden hiçbiri bazı yazıtlı heykel kaideleri ile birlikte ilgili edebi metinler dışında günümüze ulaşamamıştır. Anadolu'daki Yunan şehirleri tarafından yayınlanan Hellenistik Dönem'deki onursal kararnameleler, at sırtındaki yönetici heykellerinin resmi kraliyet portrelerinin ayrılmaz bir parçası haline gelmesiyle ilgili resmi kısmen tamamlıyor gibi görünmektedir. Ata binış modeli büyük olasılıkla, İskender'in örneğini izleyerek ordusunu at sırtında savaşa yönlendiren ve düşmanlarına galip gelen zafer dolu bir liderin tasvirinden elde edilmiştir. Bu şekilde tasvir edilen kişiler genellikle krallar ve aile üyeleri, yöneticilerin yakınları veya arkadaşlarından oluşan kraliyet görevlileriydi. Günümüzde bu bronzların geri döndürülemez bir şekilde kaybolmasına rağmen, daha sonraki dönemlerde benzer türdeki anıtların geliştirilmesiyle önemleri anlaşılabilir.

Anahtar Kelimeler: Bronz heykel, atlı süvari, onursal anıt, Hellenistik Dönem, Anadolu.

Bronze images of victorious rulers or military commanders, erected by various Greek cities, are attested since the very beginning of the third century BC. Early monuments, preserved almost solely through the epigraphic evidence, were frequently commissioned by the Greek cities in western Anatolia. Bronze equestrian statues were considered a high honour for an individual. These statues were usually referred to as *eikones*, even if located in a shrine, as opposed to those statues designated as *agalмата*, which were erected together with an altar and connected with an established cult. The most appropriate place for the statue of an individual on horseback appears to have been the agora. Since their inception, the erecting of these statues seems to have been associated with the high command of forces or the military achievements of

the honoured person. The material used, and generally also the exact cost of the statue, was usually specified in epigraphic material, frequently inscribed into the bases. The cost of a statue was apparently based on the weight of the metal used, with a horse statue requiring approximately four times as much metal as a human figure.¹ Sometimes the statue was gilded, using foil – gilt or leaf – gilt for the image, this being referred to in the inscribed text as *eikon chryse*. The prevalence of military equestrian monuments might be explained by the increased importance of the cavalry in the second half of the previous century, as well as by the attempt to legitimise power through various types of civic monuments. Numerous monuments were

¹ Stewart 1994, p. 128.

erected along the lines of older artistic traditions while also incorporating new stylistic changes.

Alexander was the first Greek ruler to understand and exploit the propagandist powers of portraiture. His portrait types were utilised and adapted for images of later monarchs, over many centuries. Literary sources claim that he had allowed only a few artists to fashion his image: the sculptor Lysippus of Sicyon, the painter Apelles and the gem-cutter Pyrgoteles.² Lysippus introduced new trends in royal portraiture art, including the depiction of a ruler on horseback. None of originals of these famous images have been identified today, but a vast array of sculptures of different materials, as well as portraits on gemstones and coins, have survived. Although monuments commemorating military victory had a place in Classical Greek art, the evidence for this is based almost entirely on literary descriptions; since the preferred material for the statues was bronze, they were often later melted down and do not survive. The transformation of equestrian images in Greek public places, from war memorials to deceased persons to the symbols of the military victories of living ones, is recognisable from the time of the erection of the famous Granicus monument at Dion in Macedonia. The monument was just as much an affirmation of Alexander's charisma and dashing leadership as a memorial to the bravery of the fallen in the battle. According to Velleius Paterculus,³ 'Alexander the Great prevailed upon Lysippus, a sculptor unequalled for works of this sort, to make realistic portraits of his cavalry Companions who had fallen at the river Granicus and to place his own likeness among them.' Some retrospective images of the deceased, marking them out as cavalry-men (*hippeis*), are known from archaic funerary stelai.⁴ Horses, an expensive and prestigious commodity, were very much a marker of upper class occupations, including cavalry service and equestrian competitions. Athenian cavalry units were traditionally drawn from aristocratic families, who enjoyed displaying their status.

The allusion to equestrian status was developed into overt heroisation with Late Classical funerary stelai for the fallen on the battlefield. The size and grandeur of Dexileos' memorial, in comparison to those of other members of his family, indicates that he may have been heroised, as a result of his death in battle.⁵ Alexander personally led the charge at the head of the royal squadron and the *hetairoi*, the elite cavalry of the Macedonian army, played a decisive role in most of his battles. Specially chosen *hetairoi* formed his elite guard (*somatophylakes*), including future *diadochoi* such as Lysimachus, Perdiccas and Ptolemy I Soter. The Granicus monument became the prototype of royal battle memorials, celebrating a victorious commander during his life time. Although no specific figures from this group have been identified so far, the depiction of its subject would

certainly have influenced later monuments.⁶ Alexander was presumably depicted on horseback, with a brandished sword in one hand and reins of his horse in the other. The surviving works which probably bring us closest to the effect of his equestrian portraits are depictions, on reliefs or mosaics, of dramatic confrontations with the cavalry in battle. It seems that historical battle scenes featuring the exploits of individuals also played an important role in the painting of iconography. Pliny the Elder mentions the battle between Alexander and Darius the Great was the subject of a painting for Cassander by Philoxenus of Eretria.⁷ The portrait of Alexander's companion Cleitus with his horse hastening into battle, as well as that of Alexander's officer Neoptolemus, fighting the Persians on horseback, was made by Apelles.⁸ He also painted Antigonus I Monophthalmus on horseback, in a three-quarter view which artfully conceals the subject's blind eye.⁹

Literary sources indicate that many equestrian sculptures of victorious generals and statesmen were erected in public places of the Greek world since the second half of the fourth century BC. Pausanias describes several dedications (*anathemata*) at Olympia which commemorated the military exploits of Seleucus I Nicator,¹⁰ Demetrius I of Macedon,¹¹ and Antigonus.¹² 'Next to these are offerings of Eleans, representing Philip the son of Amyntas, Alexander the son of Philip, Seleucus, and Antigonus. Antigonus is on foot; the rest are on horseback'.¹³ The political changes of the period 338–276 BC. entailed serious consequences for the Greek city-states. However, although the political movements, that emerged in the fourth century BC., were enhanced in the following period, the polis nevertheless remained an important unit of Greek society. The relationship between kings and cities was not simply one of domination, since they had to find ways of co-existing. Several inscriptions from Greek cities in Anatolia refer to sumptuous equestrian images dating back to the first quarter of the third century BC. They were limited to the *eikones* of *diadochoi*, mostly the Early Seleucid rulers themselves, or their commanders or allies. Kings or royal officers, later followed by wealthy individuals, became *euergetai*, who were expected to preserve civic values in many Hellenistic *poleis*. Despite their striving egalitarian character, the establishment of a civic elite within communities can be recognised. This process was documented by ample epigraphic material and the erecting of honorific statues.

Pre-existing Greek city-states were incorporated into kings' territories in a variety of ways, in some cases remaining notionally independent, even if informally

² Pliny the Elder *Nat.* 7.125.

³ Vell. *Pat.* 1.11.3.

⁴ Eaverly 1996, p. 33.

⁵ Clairmont 1983, pp. 219–21.

⁶ Stewart 1994, p. 127.

⁷ Pliny the Elder *Nat.* 35.110.

⁸ Pliny the Elder *Nat.* 35.93–6.

⁹ Pollit 1986, p. 45.

¹⁰ Paus. 6.11.1.

¹¹ Paus. 6.15.7.

¹² Paus. 6.16.2.

¹³ Paus. 6.11.1.

subordinate. Dynastic foundations and ancestral, and civic ruler cults were employed to structure the power base of the new monarchy by giving it institutional and collective forms. The origin and emergence of ruler cults is a specific issue and depends on the regional and chronological framework. If understood as partially the contribution of Greek city-states, the ruler cult served to legitimise the official authority, as confirmed by representatives of the Hellenistic *poleis*. Some of the *poleis* had to come to terms with their new position of subordination to a king, but the majority of them had been familiar with such rule before. The kings sought to legitimate their power and use it effectively, which presented some *poleis* with opportunities to work the situation to their advantage, by seeking privileges and benefactions.¹⁴ The most important class of epigraphic texts is that of civic documents from Greek *poleis* in western Anatolia. Most cities inscribed certain public transactions on stone, even when they were under the domination of Seleucid kings. The creation of these types of honorific decrees was frequently proposed directly by military commanders or supported by high ranking officials as *strategoï*, usually after a military victory in the area or some other exceptional accomplishment. It was not unusual to have several copies of the same document engraved and erected in different locations.

The inscriptions present a certain similarity in terminology and grammatical structure. Three parts can be identified in most of them, a prescript, an *epeide* and *dedochthai* clause. The prescript included the first parts of the decree, such as the invocation, dating formula or motivation clause. The *epeide* contains such data as the name of the honourand and a description of his relationship to the ruler (in the case of royal official),¹⁵ and a description of his benefaction. The *dedochthai* contains an enumeration of honours bestowed by a vote on the honourand and instructions to the magistrates in charge to inscribe the decision on stone and set it up in a public place. Besides other companions, the king was accompanied by *philoï*, friends, who were frequently chosen for administering new territories and satrapies. These, who were recruited from among the civic elite, played an important mediating role between city and king. One of the earliest examples of a Seleucid equestrian portrait is provided by an honorific decree of the Milesians, dating back to 300/299 BC. This document,¹⁶ proposed by the Seleucid general Demodamas, granted special honours to Antiochus, the son of Seleucus I and the future Antiochus I Soter, for his benefactions to the temple at Didyma. Antiochus promised to finance the construction of a portico, whose annual revenues were intended to finance constructions in the sanctuary. The Milesians decided to honour him by placing a bronze equestrian image (ε[ικόνα χαλκῆν] ἐφ' ἵππου) of him in a public place and granting him other privileges.

Antiochus followed Seleucus' own policy of benefaction towards Miletus and Didyma, presenting an image of dynastic solidarity and of a collective familial operation that became characteristic of the Seleucid monarchy.¹⁷ The royal patronage of Didyma and the emphasis on the descendency of the new dynasty from Apollo were an attempt to establish the monarchy and legitimise its power. The divine filiation of Seleucus I and the stories legitimising his power over Alexander's empire are reported by a series of ancient authors. An association between Seleucus and Apollo Didymaios is also found in Pliny's account¹⁸ of the Seleucid general Demodamas of Miletus, who crossed over the river Iaxartes in Bactria and dedicated altars to Apollo Didymaios. This was the same Demodamas, that requested the honours for Antiochus I Soter in Didyma. In the battle of Ipsus in 301 BC., the main conflict of the Diadoch war, Seleucus, Lysimachus, and Cassander defeated Antigonos and his son Demetrius I of Macedon and consequently divided their dominions. Lysimachus' share was Lydia, Ionia, Phrygia, and the northern coast of Anatolia. His companion, Hippostratus of Miletus, was appointed *strategos* of Ionian cities.

The Ionian League dignified the new military general by erecting bronze equestrian statues (εικόνα χαλκῆν ἐφ' ἵππου) in two cities, Miletus and Ephesus (Arsinoe). The decree was issued by the federal council of the Ionian League and is preserved in two copies, one from Smyrna and one from Miletus.¹⁹ The text of the document, dating back to 289/8 BC., was originally inscribed on the bases of the statues: "...and (resolved) to erect a bronze equestrian statue of him in the Panionion; and for two cities to be chosen to see to it that the statue of Hippostratus is erected with dispatch, in order that all the rest may know that the Ionians honour with the appropriate honours men who are noble and provide service to the cities. And (resolved) for each of the council-members to take back to their own cities the decisions of the Ionians, so that the decisions of the Ionians maybe there written up in the public archives. And (resolved) to have this decree inscribed on the base of the statue of Hippostratus in the Panionion and for each of the cities (to have it inscribed) in their own city on a stone stele. The cities chosen were Miletus and Arsinoe".²⁰ The whole document reflects at least one aspect of Hippostratus' administration of the area as well as his attitude toward Ephesus, which had been so steadfast in its support of Demetrius after the Battle at Ipsus.

Erecting an equestrian statue was usually connected with other types of honours, such as being crowned with a gold crown, obtaining privileged seats during festivals, being granted freedom from taxes or a free meal in the *prytaneion*, being given priority in access to the oracle, assembly or council, or even the erecting of an altar and the establishing of a cult. The phenomenon of the ruler cult, which

¹⁴ Shipley 2000, pp. 59–60.

¹⁵ Herman 1981, pp. 103–106.

¹⁶ I. Did. 479, OGIS 213.

¹⁷ Sherwin-White and Kuhrt 1993, pp. 25–27.

¹⁸ Pliny the Elder *Nat.* 1.6; 6.49.

¹⁹ Syll.3 368, IG II2 405.

²⁰ Derow and Bagnall 2002, p. 24.

gradually became a regular feature of life, did not represent a violent uprooting of existing practice, but a modification of existing religious significations in order to express and formulate the relations between urban communities and their new masters.²¹ The main sites for honorific statues were agoras, shrines, *gymnasia*, and theatres, but for equestrian statues, in particular, the agora seems to have been the most appropriate place. Privileges were usually granted to honoured persons and their descendants as well. Cities were not necessarily powerless, as the king depended on them for practical and ideological support and this mutually beneficial transaction was accepted by all. However, equestrian images differ from monuments associated with a civic divinity, as popular statue group representing *Demos* crowning *euergetes* and seem to have been an exceptional type of reward, arising from special socio-political conditions. More than three hundred bronze statues, mostly equestrian, were commissioned by the Athenians in honour of Demetrius of Phalerum.²² From the inscriptions, we know of several bronze equestrian statues that stood in the area of the Athenian Agora, including one of the Macedonian Asander,²³ dated to 314/313 BC. and one of Demetrius I of Macedon.

Another early example of the equestrian monument is attested by an Athenian honorary decree for king Audoleon of Paeonia,²⁴ whose father Ariston commanded *ile* of Paeonians in the battles of Granicus, Issus or Gaugamela. Paeonia, the mountainous region north of Macedonia, had achieved independence under Audoleon's reign. The decree, by which Athenians decided to erect a bronze statue of him in the agora, dates to 285/284 BC. In late 282 BC., Seleucus I crossed the Taurus to confront Lysimachus, whom he defeated early in 281 BC. at Corupedium. After crossing to Lysimachia, he was assassinated by his erstwhile supplicant, Ptolemy Ceraunus, in August or September of the same year. Despite the troubles in Anatolia, that followed from his father's assassination, Antiochus remained in Syria, where he faced an array of enemies the Bithynian king Nicomedes I entered into an alliance with the Northern League of maritime cities (Cius, Byzantium, Chalcedon, Heraclea, and Teos) and Antigonus II Gonatas.²⁵

After successfully dealing with a rebellion in the Seleucids, Antiochus I Soter crossed the Taurus mountains into Anatolia and within five years succeeded in concluding peace both with Antigonus II Gonatas and with the Gauls, who invaded Greece and were brought over to Anatolia. A bronze equestrian statue (εἰκόνα χαλκῆν ἐφ' ἵππου) for a high ranking Seleucid royal officers, Larichus, was the earliest honorific monument attested in the agora of Priene. The city had previously been under the political control of Lysimachus, for whom it even established an official cult, but soon supported the new rulers. The

stele, containing three decrees,²⁶ dates to 280 BC. The citizens of Priene erected statues for the king and his son and soon granted Larichus similar types of honours, but chose a different place for it. Ultimately, a bronze statue of Larichus on horseback was placed in the agora, instead of the statue previously chosen for him. Scholars have tried to explain this change due to the political conditions or financial difficulties of the city.²⁷ It is possible that the agora was considered a less prominent place than the shrine of Athena, where the statues of the Seleucids had been located. It seems even more likely that for a new type of honour, as was the equestrian statue, in this case, the agora appears to have been more suitable as the equestrian image is directly related to the command of troops. The well-constructed equestrian bases before the western stoa in Priene might belong to this monument.²⁸

Equestrian statues seem often to have been gilded. Bronze frequently served as the base for silver or gold plating and the full detail would have been picked up in the very thin plating, which could easily have been pressed over the bronze core or mould and then hammered into the grooves to secure its position. Details, such as eyes were inset with glass or stones, teeth, and fingernails inlaid with silver and lips and nipples inlaid with copper, all of which contributed to the bronze statue's lifelike appearance. In cases of extraordinary honour the equestrian statue was placed in a shrine, an act usually connected with a recognised official cult. A survey of epigraphic documents shows that the *terminus post quem* for the divine filiation of the Seleucid dynasty should be placed at the very end of the reign of Seleucus I or, more likely, after it.²⁹ The city of Ilium had established the cult of Antiochus during the very early years of the new reign. The honorific inscription³⁰ is dated between 279 and 274. The citizen conferred upon Antiochus honours including the erection of the equestrian gilt statue (εἰκόνα χρυσῆν ἐφ' ἵππου), along with the marble altar, in the temple of Athena that reflected his successes in Anatolia. Apollo was mentioned in the text as the founder of the Seleucid dynasty.

Numerous similar bronze equestrian statues formed a landscape across cities and sanctuaries in the following period. As the Seleucids lost their power in Anatolia, the Attalids were to become their principal successors on the mainland. Obviously, their statue groups in Pergamum and Athens, commemorating victories over the Gauls, were of the type of royal battle memorial which the Granicus monument had established. From cuttings found in Pergamum, designed for attaching sculptures to their bases, it can be deduced that the statues were of bronze and that equestrian figures as well as foot soldiers were included.³¹ Attalus I built the temple of Athena Nicephorus at

²¹ Shipley 2000, pp. 64–65.

²² Diog. Laert. 5.5.75.

²³ IG II2 450b.

²⁴ IG II3 1.871.

²⁵ Jones 1993, pp. 89–92.

²⁶ I. Priene 18, OGIS 215.

²⁷ Gauthier 1980, pp. 35–42.

²⁸ Ma 2013, p. 98.

²⁹ Iossif 2011, pp. 229–91.

³⁰ OGIS 219.

³¹ Pollit. 1986, p. 85.

Pergamum,³² but it was his son Eumenes II, after his victory over King Prusias, who expanded the cult by establishing the Nicephoria as crowned games. Aitolians recognised it by a decree,³³ in 182 BC. and rewarded king Eumenes II, along with his brothers Attalus, Philetaerus, and Athenaeus, with gilded statues (εἰκόνη χρυσέαι).³⁴ The musical contest of Nikephoria, consisting of games with crowns for a prize, thus came to equal the Pythian games and their gymnastic and horse-racing contests came to equal the Olympic games. The wording of this document is very similar to the decree of Amphictyons,³⁵ who honoured Eumenes II in the same year: "...with [good] fortune, [it is resolved] by the Amphictyons to praise king Eumenes son of king Attalus and to crown him with the sacred laurel wreath of Pythian Apollo, with which it is customary to crown the benefactors of the Amphictyons, on account of his virtue and his goodwill towards the Greeks; and to set up a bronze statue of him on horseback in Delphi..."

Such equestrian commemorative monument erected in Delphi was not detached. Literary sources³⁶ mention several memorials, which were erected soon after the death of Philopoemen in 183 BC., a skilled general and statesman and renowned captain-general of the cavalry of the Achaean league: "The Achaeans set up a statue of brass at Delphi, representing Philopoemen, giving the death-wound to the tyrant Machanidas, while jumping his horse over the foss." The monument of Aemilius Paullus was erected in front of the sanctuary of Apollo, close to the commemorative pillars of Eumenes II of Pergamum and Prusias of Bithynia. Dating back to 167 BC., the monument commemorated the Roman victory in the Battle of Pydna against Perseus of Macedon. The pillar used for this monument, when it was originally being erected (but only partially completed), was meant to be a base for a portrait of King Perseus himself. The completed monument was a bronze equestrian statue atop a rectangular pillar that soared over 9 m. in height. While the equestrian statue that was originally on top of the pillar no longer remains, the cuttings in the plinth show that the horse would have been in a rearing position. In this case, the initial popularity of such monuments in the Roman propaganda art is recognisable here.

The history of equestrian images in Greek public places is a long one, extending far into the past. Archaic equestrian statues were primarily confined to Attica, mostly to the Acropolis. Scholars have tried to link these statues to an Athenian aristocratic lifestyle, with divine, heroic and mortal identifications all being proposed. The funerary equestrian statues appear to have been single dedications, which was probably a function of their use.³⁷ Monuments commemorating military victories had a place in Classical Greek art and some of the Classical monuments included

portraits. Statues of a victorious ruler depicted on horseback seem to have been derived from both, Late Classical military memorials and equestrian images of Alexander. Honorific portraits awarded by *Demos*, of kings and their companions, depicted on horseback, are frequently attested in epigraphic sources of the Hellenistic period. A bronze equestrian statue was considered a high honour, tied to military success and the supreme command of forces. This form of the award also points to a mutually beneficial relationship between the monarch and the *poleis*, which still maintained a certain form of independence. Although nowadays considered lost, equestrian images in that age were an integral part of royal portraiture, persisting long throughout the periods that followed.

³² Polyb. 16.1.

³³ Syll.³ 629.

³⁴ Austin 2006, pp. 237–38.

³⁵ Syll.³ 630.

³⁶ Plut. *Phil.* 10.7.

³⁷ Eaverly 1996, p. 33.

A Bronze mirror with Aphrodite and Eros from Nicomedia in Bithynia (Northwestern Turkey)

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Abstract: The Archaeological and Ethnographical Museum of Kocaeli has in its collection a small, disc-shaped bronze mirror decorated with a relief scene, whose protagonist is the goddess Aphrodite. The scene shows Aphrodite seated left of centre on a rock. She is accompanied by two figures, a female who stands on a pedestal in front of her and her young son, Eros, who is behind her. This formerly unpublished object was found in Nicomedia in Bithynia, and has been dated to the fourth century BC. This paper will give a detailed presentation of the mirror relief scene, focus on its art-historical contextualisation and argue a first century BC. date for this object.

Keywords: Bronze mirror, Aphrodite, Eros, Late Hellenistic period, Nicomedia, Bithynia, northwestern Asia Minor.

Özet – Nikomedia (İzmit)’dan Aphrodite ve Eros Tasvirli Bronz Bir Ayna: Bu makalede konu edilen ayna Kocaeli Arkeoloji ve Etnografya Müzesi’nin yazılı izni ile çalışılmıştır.

Kocaeli Arkeoloji ve Etnografya Müzesi’nde üzerinde kabartma tekniğinde tanrıça Aphrodite sahnesinin yer aldığı gövdesi disk şekilli küçük bronz bir ayna bulunmaktadır. Ayna üzerindeki sahnede bir kayanın üzerinde merkezin solunda oturan Tanrıça Aphrodite yer alır. Ona iki figür eşlik etmektedir; önünde bir kaide üzerinde duran bir kadın ve arkasında ise küçük oğlu Eros bulunmaktadır. Daha önce yayımlanmamış bu obje Nikomedia (İzmit)’da bulunmuş olup, envanter defterinde İ.Ö. 4. yy. olarak tarihlendirilmiştir. Bu makalede ayna üzerindeki kabartmalı sahne detaylı bir biçimde tanıtılacak, sanatsal açıdan incelenecek ve objenin tarihi içinse İ.Ö. 1. yy. önerilmeye çalışılacaktır.

Anahtar Kelimeler: Bronz ayna, Aphrodite, Eros, Geç Hellenistik Dönem, Nikomedia, Bithynia, Kuzeybatı Anadolu.

The mirrors in the ancient Greek and Roman Asia Minor consisted almost invariably of small circular discs of metal, which could be placed upright on a table or held in the hand.¹ Functioning much like their modern-day equivalent, the most frequent type of Hellenistic and Roman mirrors was hinged mirror, *i.e.* *Klappspiegel* in German. The usual material for the mirrors was bronze, but some made of silver have also come down to us. Typologically the

disc-mirrors have one side, usually slightly convex, left plain and polished for reflection. Roughly half of the mirrors known to us are decorated either with engravings or moulded reliefs on their reverse. Typical decorative scenes derive from representations of Greek or Roman myths. These reliefs usually consist of subjects relating to the cycle of Aphrodite and Dionysos.

This chapter focuses on a single mirror found in Nicomedia in Bithynia (**fig. 11.1**) and now kept in the Archaeological and Ethnographical Museum of Kocaeli (**figs. 11.2a-b**).

¹ Cf. for general description of fabric and technique of Roman mirrors: Schwarzmaier 1997.



Figure 11.1. Places in Asia Minor and elsewhere referred to in the text (by S. Pataci, 2020).



Figure 11.2a-b. A bronze mirror with the reliefs of Aphrodite and Eros. Archaeological and Ethnographical Museum of Kocaeli, acc. no. 1599 (by G. Kan Şahin, 2018).



Figure 11.3. The Archelaos relief in the British Museum, acc. no. 1819.8-12.1. ca. 225-200 BC. (by G. Kan Şahin, 2018).

This formerly unpublished object is made of a single piece of bronze of uniform thickness. It consists of a slightly convex disc which is slightly damaged with an ornamental plaque. The mirror was cast and then hammered using the techniques of repoussé, relief and chasing. The surface of the metal is well preserved on both sides; however, delamination of the corroded layers are present. It is also broken and cracked diagonally in its middle part and has areas of loss. It should be conserved to fill losses and to reinforce the reverse for structural support. Its acc. no. is 1599. Its disc is perfectly round with a diam. of 120 mm.² According to the inventory book, the exact find-spot of the mirror remains unknown, as it is only recorded as ‘Nicomedia’. It is a bronze medallion decorated with a figurative relief scene, which due to its overall shape, probably originally formed the outer part of a pocket mirror that could be held in the hand or carried in a pocket. To view your reflection, you simply had to turn the object around. As is usual for ancient mirrors, the concave exterior is decorated with pictures and the actual mirror surface appears on the slightly convex inner surface. The centre of the relief scene is occupied by a female figure, depicted sitting on an irregular rock,³ as are some of the Muses in

² Other measurements are as follows: h. of Aphrodite 75 mm, h. of female in front of Aphrodite (without base) 38 mm. and h. of Eros without the basket 23 mm.

³ Aphrodite sitting on a rock and resting on her left hand behind her body is a type known from Greek vase painting as early as the turn of the fifth and fourth century BC. The theme was not transferred into larger-scale sculpture until the Late Hellenistic period; see examples Delivorrias, Berger-Doer and Kossatz-Deissmann 1984, p. 94, cat. nos. 880–890.

other scenes⁴ (fig. 11.3). Her youth and beauty are depicted by her naked body, only covered by a robe from her hips down: this plastic figure is the goddess Aphrodite. The figural decoration in relief is very elaborate and its quality is quite high. The quality of the art is high and the anatomy of the figures is perfect.

This Aphrodite wears jewellery on both wrists in the form of snake-shaped bracelets. In antiquity, snakes were positive symbols of protection for the family and fertility. Snake bracelets were particularly popular and were worn in pairs on the wrists (*perikárpia*, *armillae*, *spatialia*) or the upper arms (*spinter/dextrocherium*, *brachiale*). These can be observed in numerous representations of Aphrodite, for example, on a terracotta figurine from the Troad⁵ (figs. 11.4a-b), which dates from the first half of the second century BC., or even on Hellenistic terracotta figures of Eros from Myrina, who instead wears them on his upper legs.⁶ Corresponding pieces of actual jewellery made of gold and silver have been found in Pompeii, Italy⁷ (fig. 11.5). One Pompeian hairpin even has the shape of an arm that wears a snake bangle.⁸ These bracelets have the snakes scales indicated through the first loops behind the heads and again at the terminal loops also set with stones. These so-called snake bracelets, together with snake fingerings were most common in the Late Hellenistic and Early Roman periods.⁹

The posture of the Aphrodite figure is relaxed and recalls the iconography of the Muses. While her left arm rests on the rock, her right arm is stretched out and directed towards a kind of bowl (towel or leaf, because of the zig-zag-edges?), which is being offered to her by a small figure on a pedestal. Although this figure is depicted diagonally from the back, she can be recognised as a female goddess who is clothed in a long garment and has long hair in corkscrew curls that fall forward. Her rigid body posture probably derives from an archaic image of the same goddess. The short veil is also indicative of Aphrodite.

Aphrodite’s gaze, however, does not focus on what she is doing; instead, she turns her head in the other direction and gazes out of the picture into the void. The winsome sweetness of expression, the suggestion of a smile, the ease and grace of motion seem to point to the goddess who was the ideal of all womanly beauty and charm. Next to her on the right-hand side, an Eros figure stands on a

⁴ Cf. some Muses on the marble relief signed by Archelaos/The Apotheosis of Homer, found in Bovillae, Italy, in the British Museum, acc. no. 1819.0812.1, dated to the end of the third century/first half of the second century BC. (ca. 220–200 BC.); cf. Seaman 2020, chapter 3.

⁵ The Archaeological Museum of Çanakkale, acc. no. 2123; Zimmer 2014, pp. 199–200, ‘AvK-ts 56’, pl. 16, fig. 72; as well as pl. 17, figs. 73–75.

⁶ Erotes from Myrina: Zimmer 2014, pl. 35, fig. 159 (Eros from Myrina, Louvre, acc. no. Myr 60); and fig. 160 (Eros from Myrina, Louvre, acc. no. Myr. 61).

⁷ Athens, Collection of Hélène Stathatos, without acc. no., Zimmer 2014, fig. 163.

⁸ Pompeii, acc. no. 13288; Berg 2002, p. 40, fig. 6.

⁹ One of the most spectacular golden bracelet is in the John F. Kennedy Presidential Library and Museum in Boston.



Figure 11.4a-b. A terracotta statuette of Aphrodite with snakes entwined around her left arm and left leg, from the *Tumulus* of Dardanos. The Archaeological Museum of Çanakkale. Second century BC. (by G. Kan Şahin, 2018).



Figure 11.5. A golden bracelet from the nearby of Pompeii (by G. Kan Şahin, 2018).

wide, slightly sloping rocky step.¹⁰ He is characterized by his thick legs and narrower upper body, typical signs of

¹⁰ Probably the earliest union of the two is found on mirrors. In an example in the British Museum, of the last half of the sixth century BC., the figure of Aphrodite forms the stand, while from the mirror hang two winged boys, Erotes: Walters 1899, p. 24, pl. 4, no. 241. Cf. also no. 242 and an Etruscan mirror, no. 543. Also for a fine mirror, featuring Aphrodite and a very mature young Eros, in the collection of the Otago Museum in Dunedin (NZ) cf. Stewart 1980.



Figure 11.6. Fresco with Eros holding an umbrella over Aphrodite and Ares. House of the Ephebe in Pompeii (by G. Kan Şahin, 2018).

his infancy. With both hands raised, he lifts up a reversed basket, either emptying it out or putting it on like a sun hat in a playful way. In a wall painting from the Pompeian ‘House of the Ephebe’ (1,7,11), the gods Aphrodite/Venus and Ares/Mars sit close together and Eros holds an umbrella over both of them in a similar manner (fig. 11.6). However, it is more probable that the object is a basket, as Cupids use vessels and baskets for all types of work; see, e.g., a glass gem with Cupids making perfume from the first century AD in the Museum of Fine Arts in Boston (fig. 11.7).¹¹

The entire scene takes place against a smooth background. The rock formation serves as the ground for Aphrodite, upon which she places her feet, and also as a means of ascent for the small Eros figure, it is also decorated in some places with fine detail in the forms of flowers and plants. The mirror is captivating in that it is in a state of excellent preservation; it seems to have only one serious fault line that runs from the top right behind the head of the Aphrodite, over her shoulder to the upside-down basket or umbrella of the Eros and then follows the mirror’s outer contours. Minor surface damage is observed on the right upper arm of Aphrodite and on the hairline directly above her forehead.

The Aphrodite theme is particularly suitable as a representation on a mirror,¹² as the goal of the female owner of such an object was to precisely imitate the goddess and compete with her in terms of beauty and love. The scenery on the outside of the mirror from Nicomedia can be closely compared with an antique plaster cast of a bowl from ‘Mit-Rahîne’/Memphis in Egypt, from the late third century BC., which is kept in Hildesheim.¹³ This cast has a similar pattern, in that Aphrodite is depicted in

¹¹ Kondoleon, Segal and Karageorghis (eds.) 2011, p. 103, fig. 197 (in colour), cat. no. 66.

¹² Cf. Kondoleon, Segal and Karageorghis (eds.), p. 198.

¹³ Roemer- und Pelizaeus-Museum Hildesheim, acc. no. 1128; Reinsberg 1980, pp. 129–30 and 319, fig. 84, no. 53; and also Delivorrias, Berger-Doer and Kossatz-Deissmann 1984, p. 94, pl. 88, no. 886.



Figure 11.7. Glass-paste *intaglio* with cupids making perfume. The Museum of Fine Arts, Boston, acc. no. 98.746. First century AD (by G. Kan Şahin, 2018).

a rural sanctuary, pouring a sacrifice in a bowl held by an archaic Aphrodite statue that stands on a pedestal. Two Eros figures are present. While one Eros is sitting close to the rock, the second Eros flies towards Aphrodite to honour her with a ribbon and a wreath. The most striking difference between the relief scenes depicted on the object in Hildesheim and the bronze mirror from Nicomedia is that, in the former scene, the goddess focuses her gaze upon her action, whereas she tilts her head away and makes the offering without paying attention to it in the latter scene. A second big difference is the presence of an Eros flying toward Aphrodite and, thus, refers to her in the relief scene on the object in Hildesheim. In the scene on the object from Nicomedia, however, the playful Eros on the bronze mirror does not appear to interact directly with Aphrodite. Even though Aphrodite's pose appears to be quite similar in both works, the Aphrodite on the relief scene on the object in Hildesheim displays more bodily tension than the Aphrodite on the bronze mirror from Nicomedia.

The Hildesheim medallion has always been interpreted as being very similar to a gold-plated, silver medallion of Aphrodite from Taranto, now in the British Museum,¹⁴ (fig. 11.8) dated to the first century BC.¹⁵ It also serves as a comparison with the mirror relief from Nicomedia, style of which is more refined and attractive than the BM one. The scene on the Taranto relief has been correctly interpreted as Aphrodite offering a sacrifice in front of a cult image of herself in a sacred grove. This interpretation may also be adopted for the relief mirror in Nicomedia. In both, the statues of the goddess stand on pedestals. Through the interaction of worshippers with the statue of a deity, the statue of a deity can become a currently present

'deity'.¹⁶ The figures were hammered from behind using the repoussé technique. The ornaments that appear in the background and along the lower margin are engraved and, in part, particularly emphasised with additional gold paint. On the left side, next to Aphrodite on the floor, there is a small, ivy – leaf – shaped fan, which is well-known from Tanagra terracotta figures,¹⁷ of the fourth and third century BC. We can see a butterfly, flowers, musical instruments and a cicada in the background and hammered along the lower margin, which are to be understood as the premises of Hellenistic music.¹⁸ The elusive sounds produced by these insects known for their musical voices are transformed and captured through their depictions. These sounds can be recalled by looking at their depictions. There are differences in how these insects produce sounds.¹⁹ Both the musically able insects who represent music and Aphrodite have effective powers over people.²⁰ Similar flowers and engraved decorations can also be found on the relief in Nicomedia, especially when looking at the floor area of the scene.

The pedestal and the almost archaic representation of the statue evoke antiquity, divinity and a sacred environment. An Apulian krater from the fourth century BC. shows an Artemis statuette²¹ in a similar way. It is placed on a high pedestal and holds a bowl in its hand. The similarities between the bronze mirror from Nicomedia and the Hellenistic examples mentioned above can be explained by the fact that pattern books or models in plaster were

¹⁴ The British Museum, acc. no. 1853,0314.1; diam. 93 mm; Delivourrias, Berger-Doer and Kossatz-Deissmann 1984, p. 94, no. 887; Leitmeir 2017, p. 224, fig. 2.

¹⁵ Zahlhaas 1975, p. 39; Reinsberg 1980, p. 261; and Leitmeir 2017, p. 222, no. 19. Perhaps the BM mirror is in fact Roman in date, where they have thrown in a lot of extra decoration, such as the insects, etc.

¹⁶ Guggisberg 2013, pp. 67–68.

¹⁷ Musée du Louvre, acc. no. CA 3312; Jeammet 2010, p. 114, cat. no. 84; Musée du Louvre, acc. no. MNB 581; Jeammet 2010, p. 117, cat. no. 87; Musée du Louvre, acc. no. TC 7674 and St. Petersburg, Hermitage Museum, acc. no. 435a; Jeammet 2010, p. 119, cat. nos. 41–42.

¹⁸ Leitmeir 2017, pp. 220 and 224, fig. 2.

¹⁹ Leitmeir 2017, p. 222.

²⁰ Leitmeir 2017, p. 225.

²¹ Apulian calyx crater of the Dareios painter, Antikenmuseum und Sammlung Ludwig in Basel: De Cesare 1997, pp. 143, 257 and 356, fig. 84, cat. no. 196.



Figure 11.8. Gilded silver medallion showing a reclining Aphrodite, waited on by a girl and a playful Eros, from Taranto. The British Museum, acc. no. 1853,0314.1. 300–200 BC. (by G. Kan Şahin, 2018).

circulating at the time, from which figures and scenes were copied throughout the whole Mediterranean world.²²

According to the museum's inventory book the mirror has been dated to the fourth century BC., which seems to be a fairly early age for this type of mirror. Mirror reliefs of Aphrodite continued to be produced during the Roman Imperial period, but the narrative plot and the language of the style changed. Several mirror reliefs produced during the Roman Imperial period show the goddess Aphrodite/Venus surrounded by numerous Eros figures, who are playing with the weapons of Ares/Mars²³ or are surrounding the goddess, holding ribbons and honouring her with wreaths. During that period, different Aphrodite myths were depicted than in the Hellenistic period and the reliefs are worked in a much flatter style. Therefore, the bronze mirror in Nicomedia should still be dated to the Late Hellenistic period, *i.e.* first century BC., perhaps to a period between 25 BC. and 25 AD. A further reason for this dating is the appearance of the face of Aphrodite, which

clearly resembles Hellenistic sculptures; for example, see a Hellenistic terracotta figurine²⁴ and a marble head of Isis from Thmuis from the second century BC.²⁵ The complicated posture of Aphrodite's legs in the figure on the mirror from Nicomedia, which skilfully lends depth to the image, is also in perfect harmony with Late Hellenistic traditions.²⁶ The relief appears to be backed by a simple disc mirror and has no hinge attachment, so presumably it is indeed a late and much simplified version of the earlier fourth-early third century BC. "box" or compact mirrors (*Klappspiegeln*).

Notes and acknowledgements

The mirror in the Archaeological and Ethnographic Museum of Kocaeli was studied with an authorisation granted by the Directorship of this Museum to Dr Gülseren Kan Şahin (Sinop) on March 15, 2018 and enumerated as 62901608–155.01/E. 228521. The necessary documentation was assembled on October 22, 2018 by Dr Kan Şahin.

²² Zahlhaas 1975, p. 69.

²³ Antikensammlung in Munich (purchased on the art market): Schulze 2005, p. 37, fig. 1; and pp. 40–42, figs. 5–8 (details), dated to the first century BC.; Budin 2010, p. 108, fig. 5, no. 9 (drawing); Staatliche Antikensammlungen in Berlin (from the art market in Beirut, acc. no. Furtwängler 7965, diam. 120 mm): Zahlhaas 1975, p. 76, pl. 20, cat. no. 20; Zimmer 1987, pp. 41 and 69, pl. 25; Michaelides 2002, p. 359, fig. 8; Prähistorische Staatssammlung in Munich, acc. no. 1974, 5300 (provenance unknown), diam. 112 mm: Zahlhaas 1975, p. 76, pl. 21, cat. no. 22; Michaelides 2002, p. 358, fig. 7; a mirror from a grave in Paphos on Cyprus acc. no. 2536/88: Michaelides 2002, p. 353, fig. 1 (photo) and fig. 2 (drawing), pp. 354–57, figs. 3–6 (details).

²⁴ *E.g.* terracotta figurine in Louvre (330–200 BC.): Jeammet 2010, p. 205, cat. no. 172.

²⁵ From the second century BC., from Thmuis in Egypt, today in the Museum of Cairo, acc. no. JE 39518: Smith 1994, p. 210, fig. 251.

²⁶ *Cf.* Houby-Nielsen 1996.

A Group of Bronze Vessels from Arycanda in Lycia (Southern Turkey)

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Abstract: Arycanda is a small city in Lycia, the southwestern region of Asia Minor. The excavations led by Professor Cevdet Bayburtluoğlu from Ankara University have shown that the city has not played an important part in ancient neither politic nor military history. However, it has an active economic life in Arycanda in the meaning of industrial and luxury trade. Due to the erosion activities in Arycanda (as a typical problem for a slope settlement), we can not determine the certain place of bronze industry in the city. On the other hand, the amount of bronze finds in the city is showed that Arycanda has a very lively Bronze industry since Hellenistic times. One of the important parts of bronze finds in Arycanda is the bronze vessels. Most of these vessels were founded in certain parts of the city such as Slope houses and Agoras. Because of these vessels belonged to a certain context we can take these examples from the Hellenistic to Late Roman period. In this presentation, the author takes these vessels as a datable find in the city and also a vision of the local industry of the region.

Keywords: Bronze vessels, industrial trade, Hellenistic period, Roman period, Early Byzantine period, Arycanda, Lycia, southwestern Anatolia.

Özet – Arykanda’dan Bir Grup Bronz Kap: Arykanda, Anadolu’nun güneybatı kesimindeki Lykia Bölgesi’nde yer alan küçük bir şehirdir. Ankara Üniversitesi’nden Profesör Cevdet Bayburtluoğlu başkanlığında yürütülen kazılar, kentin ne siyaset ne de askerlik tarihinde önemli bir rol oynamamıştır. Ancak Arykanda endüstriyel ve lüks ticaret anlamında aktif bir ekonomik yaşama sahipti. Arykanda’daki erozyon etkisi nedeniyle (yamaç yerleşimi için tipik bir sorun olarak), şehirdeki bronz endüstrisinin olası yeri belirlenememiştir. Öte yandan, kentte ele geçen bronz buluntu miktarı Arykanda’nın Hellenistik Dönem’den beri çok canlı bir bronz endüstrisi olduğunu göstermektedir. Arykanda’daki önemli bronz buluntu gruplarından birisi de bronzdan yapılmış olan kaplardır. Buluntuların büyük kısmı, Yamaç Evleri ve Agora gibi şehrin bazı bölümlerinden ele geçmiştir. Örnekler, kentteki kazılarda konteks verileri net olan alanlardan ele geçmiş olması nedeniyle büyük ölçüde Hellenistik Dönem’den Geç Roma Dönemi’ne kadar tarihlendirilebilmektedir. Bu bildiriye yazar, söz konusu örnekleri, tarihlendirilebilir bir buluntu olarak ve bölgedeki bronz endüstrisi içindeki yeri açısından ele almaktadır.

Anahtar Kelimeler: Bronz kaplar, endüstriyel ticaret, Hellenistik Dönem, Roma Dönemi, Erken Bizans Dönemi, Arykanda, Lykia Bölgesi, Güneybatı Anadolu.

Introduction

As a material that can provide information on both the ancient manufacturing as well as its decoration methods, the metal vessels are one of the less researched topics in Asia Minor. This study, based on the bronze vessels from

Arycanda, intends to contribute to that field. Arycanda is in the southwest of Asia Minor, close to the modern Finike-Elmalı Highway in Antalya. During excavations, it was revealed that the city was developed in the Hellenistic period and reached its zenith in the Roman Empire. The population mostly engaged in trade activities with

nearby territories which can be seen in its influences on architecture, coins and other small finds.¹

One of the largest groups of Arycanda metal finds are bronze vessels and vessel fragments. They were found in various parts of the city such as terrace houses, Agora and the other residential areas (called as HTD sector etc.). According to the findspots these objects can be dated from the Hellenistic up to the Roman period. In this paper, all Roman and later examples were categorised by their find layers and their parallels in already published materials.² The importance of the bronze material from Arycanda depends not only on the material itself but also partly on the discovery of the metal industry at this site

The metal industry in Arycanda

Although the city did not play an important part in either the political or military history of the Lycia region, it did play an active part in the region's economic life. The excavations showed that the city's economic life was not only based on trade activities but also had an industrial component.

In the Agora, many unstratified local metal finds as well as mould pieces were found, which showed that there had been some minor industrial activities here at least since the Hellenistic period. The major finds were from a local workshop that was identified in the sector of Naltepesi and is dated to the late fourth/early fifth century AD.³ Besides some of the local workshops that were identified in the Agora, there are also many examples of slag remains which indicate a mining industry. In these workshops a great many ironsmithing and blacksmithing tools were found, as well as some finished product which were ready to be sold such as iron agricultural tools and some bronze vessels.

Among these tools was an iron anvil in the form of a 'T', such as can be seen above left, used mostly for creating a form of vessel body with hammering. For this reason, it is assumed that the workshop was producing some bronze vessels as well as other metal tools in the late fourth and early fifth century AD.⁴ As a result, it is possible that metalworking in the city not only consisted of metal production from pure ingots but also the purification of ores.⁵

¹ For Arycanda see Bayburtluoğlu 2003; Knoblauch and Witschel 1993, pp. 229–62; Şahin 1994, pp.1–176; Kuban 1993, pp. 131–36; Tek 2001, pp. 238–43; Tek 2002, as well as Tek 2003, pp. 82–86. Results of excavation campaigns at Arycanda can be found in Turkish 'Kazı Sonuçları Toplantısı' volumes since the end of 1970s.

² This article consists of a part of my Ph.D. diss. named 'The metal finds and the metalwork in Arycanda from the seasons between 1971–2002' which is still being prepared for publication. I would like to thank Professor Cevdet Bayburtluoğlu, the former director of Arycanda Excavations, for encouraging and assisting me in this work.

³ Bayburtluoğlu 1986, p. 94; as well as Kuban 1993, p. 131.

⁴ For detailed discussion: Kuban 1993, p. 131.

⁵ In addition to tools, it can be found so many slag finds all through the city. The analysis which made on these slags were prepared to publication by the present author.

The bronze vessels of Arycanda

There are many bronze finds from Arycanda. Apart from bronze vessels, there are also jewelry, medical and cosmetically instruments and sculptural finds from various parts of the city. All these objects have corrosion damage, oxidation and melting traces, mostly due to erosional landslides and partly melting activities in ancient times.

The bronze vessels were found across the different parts of the city, mostly in the residential and commercial areas such as Slope Houses and the Commercial Agora. The find place of these bronze vessels were mostly distinguished layers such as earthquakes and a general fire in the city that were started in and around the metal workshop in the early fifth century AD. This context gives a possibility of the terminus post quem for these vessels.

The vessels were classified into two groups: open and closed shapes.

Closed shapes – *Aryballos*

No. 1 is an *aryballos*. It was founded together with a spatula in a tomb in the eastern *necropolis*. It was cast in two pieces. The *aryballos* has an oval form and a narrow neck.

Aryballoi are widely used for oil in sporting and cosmetic context. Since Geometric period their pottery and glass parallels were very popular. In the sixth century AD, *aryballoi* most commonly had spherical bodies; with the beginning of the Hellenistic period, another popular option was the oval body shape, like this Arycanda example.⁶ This *aryballo* has so exact parallels from the Hellenistic and Early Roman periods from Pompeii, Israel and Greece.⁷ The deep foot rings and the profile of the mouth reveal a good workmanship. This example can be dated to the late first to early second century AD through its context material.

One-handed jugs

One-handed jugs are the most widely used vessel form in antiquity. While there are various types due to function, one-handed jugs are mainly used for wine and water service.⁸ There have been many one-handed jug fragments found in Arycanda. Because these fragments are so many and most of them have damaged, we have listed here only the examples in good condition.

No. 2 is a beaked *oinochoe*. This example, which was cast in two-pieces, is 20 cm in length. The base portion was made in separate pieces and then combined with the spherical body. There are lead traces on the body which

⁶ About the Hellenistic *aryballoi*: Strong 1966, p. 54.

⁷ For general comparison of the bronze *aryballoi*: Brommer 1969, pp. 22–23; as well as Hayes 1984, p. 93.

⁸ Hilgers 1969, pp. 23–27.

was used for joining the handle to the body. Although this form has many early examples in glass and pottery, starting from the Geometric period, the specific handle form, production technique and style of the foot ring shows that this *oinochoe* type revealed in the early first century AD in Italy.⁹ This type has a very smooth body and a handle with mask and floral motifs. Its closest parallels have been found in western territories of the Roman Empire such as Germania, Gallia and Britannia, as well as in the eastern parts of the empires such as Pannonia and Thraciane.¹⁰ This situation can be classified by the local imitation of the Italian origin.¹¹

The findspot of the Arycanda *oinochoe* has a very complicated context and will not give us a possibility for dating. However, it dates to between the Augustan period and the end of the second century AD. Although it has some parallels in form with the Pannonia and the Italian examples, it has a lower production quality. Especially its foot rings were made swallowed and simple. In this we can say at least, it probably was made by a local production centre which derived the form from Italian types. Some scholar mentioned that this kind of production centre is widely scattered in Middle and Eastern Empire through the second century AD and later.¹²

No. 3 was found in the Naltepesi region. It was made using the lathe-turning method. The body and the outer part of the foot ring were made in one piece. The centre part of the foot ring was made separately. The closest parallel to this jug was found in a tomb at Palaia Phocaea, Greece and dated to the late fourth/early fifth century AD.¹³ This kind of jug a high foot ring, which comes into being after the third century AD. The find place of Arycanda example is together with its parallel. The jug was found in a Late Antique building complex, which was destroyed in a general fire in this part of the city in the first quarter of the fifth century AD. Thus the jug should date to just before this period.

Another one-handled jug was found in the great bath-complex in Arycanda. This example (**no. 4**) has a reverse conical neck, flat rim and a wide-bellied body. The high foot ring was made separately. Square handle covered the rim with two arms. The neck, body and foot were made in three pieces using the lathe-turning method. Other examples of this form can be found after the first century AD. Raev divided this type into two groups. The

'Wehringen' type was first produced in Italy in the first century AD, then exported to the provinces, and became the prototype of the local productions through the second century AD.¹⁴ This type was also called the 'Straldza' group by Radnoti. It has been surmised that this 'Straldza' group was produced until the third century AD, and later variations have been found in the Balkans and the Black Sea.¹⁵ The Arycanda example probably belongs to a local production centre and can be dated to the late fourth and early fifth century AD with context.

Another example from Naltepesi (**no. 5**) is a wide-bellied form made in two pieces using the the hammering method and its traces were left without polishing. It has a beaked spout, conical neck and light concave profile. The closest published parallel of this form was found in an Early Byzantine shop at Sardis.¹⁶ Although this example has no parallel in the city, it should be dated to the late fourth/early fifth century AD due to its findspot, which was one of the last-settled residential places in the city.¹⁷

No. 6 was found in a Late Antique building that placed on an Early Roman temenos. This example was made in three pieces and soldered together. It has *réposse* decorations on the neck. Its lid is the spout-shaped. Similar examples were found in Trakheia and Bulgary in fourth century AD.¹⁸ There are also some later examples such as one from the seventh century AD Yassı Ada shipwreck and at second century AD example from Corinth.¹⁹ In that case, the Arycanda example can be dated to late fourth/early fifth century AD due to this context.

Open shapes – Basin

No. 7 is a basin and was found in a private house. It is partly damaged. The example has a wide and shallow form with a ring-foot base later joined to the body. The body is stretched upward and curved outside at the mouth part. There are traces of three appliqué handles on the body.

It also has two groups of three incised lines on the body surface. This form was very popular, especially in Germania. Eggers has classified this form in 'high footed and straight walled shape' and grouped in ten subclasses (Type 78–87) and dated generally late second/early third century AD.²⁰ Petrovsky mentioned that this form was also produced in the northern Europe/Rhine Area.²¹ Although there is no certain data for its function, this object was probably used for mixing wine.²² The findspot

⁹ Typical parallels made of silver from Boscoreale (Louvre, acc. no. BJ 1900; the Museum of Naples, acc. no. 25694).

¹⁰ Gallia: Lamb 1966; Den Boesterd 1956; Germania: Deppert 1977, p. 14ff; Eggers 1951; and Eggers 1966, pp. 67–164; Aegyptus: Hayes 1984, p. 21f; Pannonia: Radnóti 1938, p. 155; as well as Tracheia: Raev 1977, p. 611, no. 40.

¹¹ About the local productions in eastern provinces see Radnóti 1938, p. 155; and Raev 1977, p. 605. Raev mentioned that the local production was start with imitations of Italian product. By the time these workshops was changing to their own local styles. The Trachea example was classified by Raev as a local product due to its flat mouth and the long necked local pottery style.

¹² Petrovsky 1993, p. 64; as well as Lamb 1969, p. 168.

¹³ Byzantine and Christian Museum in Athens no. BXM 451.

¹⁴ Raev 1977, p. 616.

¹⁵ Radnóti 1938, p. 157.

¹⁶ Crawford 1990, p. 62ff, no. 285.

¹⁷ Bayburtluoğlu 1986, p. 94.

¹⁸ Raev 1977, p. 5.

¹⁹ Yassiada: Bass and Van Doorninck 1982, p. 270; and also Corinth: Davidson 1952, p. 74, pl. 52, no. 559.

²⁰ Eggers 1951, pls. 8–10.

²¹ Petrovsky 1993, p. 132, Type 17.1.

²² Eggers mentioned that this form was used with 'Hemmer Eimer' to cover the body as Urne: Eggers 1951, p. 231; this find group can be used as a wine service vessel in burial customs. Similar examples can also be found in eastern Thracian *Tumulus*: Yıldırım 2007, pp. 708–709.

of the Arycanda basin may date to either Hellenistic or Byzantine periods. Therefore it is hard to give a clue about dating. However, its wall has a curved form and therefore it should be an Early Roman example.

Handles

The decoration of the Roman bronze vessels consists mostly of applique parts and cast handles. Masks and floral motifs on both types were popular in the eastern Mediterranean since the Hellenistic period, and became popular in the Flavian period in the Roman Empire.²³ There are some examples of this decoration technique among the bronzes found in Arycanda.

No. 8 has a Medusa head on its lower part and two volutes extended arms surrounded mouth. The upper part was broken. The swollen hair of Medusa is in big slices. The eyes, nose and mouth are detailed in relief and the eyelets are pointed. This example, with its Hellenistic style was found in a second century AD context.

No. 9 was founded in the Agora. It has traces of lead which was used for joining the handle to an *amphora*, at the lower part of the body. The handle is in the shape of a bow, possibly belonging to a narrow-necked, large, spherical-bodied *amphora*. The lower part of the handle is decorated with two volutes, a palmette and a feminine mask at the centre. There are many similar handles dated to the first/second century AD. The closest parallels were found in the eastern Thracian *tumuli* and in Pannonia.²⁴ The hairstyle of the mask is associated with the last quarter of the second century AD.²⁵ Due to the findspot, this handle can be dated to last second to early third century AD.

No. 10 was also found in the Agora. It probably belongs to a narrow-necked *amphora* based on the arm forms surrounding its mouth. This wine serving jug has parallels in southern Italy, Pannonia and Macedonia which have been dated to the first and second centuries AD.²⁶ The Arycandan example has a two volute shaped arm at the upper end and a mask wearing a Phrygian cap at the lower end. This mask has a lower quality in eyes and nose. The find place of this example dated to the first century AD.

No. 11 which was found in a private house belongs to a long, narrow *oinochoe* form. That kind of forms that has a flat mouth and narrow body have been found in first

century AD contexts.²⁷ Its handle with attachments at the lower end became standard in the second/third century AD around Thrace, Pannonia and Syria.²⁸ The example from Arycanda shows a different type, with an Eros figure at the lower end of the handle; it can be dated to the third century AD.

Two examples of open-shape handles belong to one-handed vessels. Both examples are *patera* types, one of the most widespread shapes in the Late Hellenistic and Early Roman periods.²⁹ **No. 12** has a long and flat sectioned form, ending with a bulb and a hole in the shape of a keyhole. This form has many parallels in a widespread area from England to Hungary.³⁰ Its earliest examples date to the first century BC.³¹ The Arycanda example should be dated to the first century AD, as the other finds in its context belonged to the Flavian period. However, we have no direct evidence for the centre of production.

Another example from Arycanda is a *patera* handle with a swan head at the lower end (**no. 13**). The front facet of the handle is decorated with floral motifs such as palmettes and leaves. This is one of very few examples of this decorated handle type found in the eastern Mediterranean. All other known examples, in total 160, have been found in Italy and Asia Minor. The findspots of some other examples, which are at various museums, are unknown. All examples excluding the Arycanda handle have been dated to the first century AD. All examples have a mask or a swan's head in Hellenistic style at the lower end. The quality of the decoration is also very high.³²

This Arycandan example is similar to these other *patera* handles in decoration. Its closest parallel is a handle from Priene with a lotus motif at the two surrounded arm. There is some discussion about the production centre of this handles. Radnoti assumes that Pompeii was the main centre because of the many examples found there. Petrovsky, however, believes that the production centre was probably in the eastern Mediterranean because the Hellenistic influence is very clear.³³ The Arycanda handle can be dated to the early first century due to its context.

²³ Radnóti 1938, p. 146.

²⁴ For Pannonia see Radnóti 1938, p. 165f, pls. 43–44; for examples in Thracia see Onurkan 1988, nos. 66–67: Umurca B2 (late first century AD) and Eriklice (second century AD).

²⁵ 'Scheitelzopf'. In this form, the hair separated to two opposite direction goes down to temporal and twisted back. The hair is twisted back and wrapped to the front side of the head. The part of twisted hair is not so long to the third century AD. In this period it is getting closer to the forehead. This hair style can be seen also in coin images and portraits in and around southern Asia Minor. For development of the type and the examples around Lycia and Pamphylia: İnan 1965.

²⁶ Radnóti 1938, p. 165f, pls. 43–44.

²⁷ For Pompeii examples: Ritz 1990, p. 12, Type A1, B2 and B4; as well as Raev 1977, p. 620.

²⁸ Raev 1977, p. 621.

²⁹ *Paterae* can be seen together with other vessels for wine service on ancient altars. A good example is on the wall painting of Vestorio Priscus's Grave in Pompeii. For the other examples see Onurkan 1988, p. 48, n. 254–255.

³⁰ The so-called 'water jug with flat handles' were classified by Radnóti in the sub-group by form, handle and the profile. The example of Arycanda can be put into the second group: Radnóti 1938, p. 63.

³¹ Petrovsky 1993, p. 96.

³² The most remarkable examples are from Priene (two examples): Heilmeyer 1988, nos. 2–3; an example from Emona: Giunilia-Mair 1996, pp. 48–63, no. 56; five examples from Herculaneum: Nuber 1972, p. 193, Lieke E II.b1, b2, b3, c2 as well as c3; and an example from Pompeii: Petrovsky and Stupperich 1999, pp. 7–78, no. 11.

³³ Petrovsky and Stupperich 1999, pp. 1–78.

Conclusion

The bronze vessels discussed in this article can be mostly dated from the first century BC. to the fifth century AD. All the examples were used daily, everyday purposes and were decorated only using appliques and handles.

The majority of the vessels are closed forms such as *oinochoe* and *aryballos*. They were joined together after produced separately and hammered. All the vessels were used for daily purposes such as storage and service. The bodies of the vessels were left undecorated, with the exception of handles which have modelled decorations of masks and leaves.

The lack of stamp-like signs made it impossible to define the master or workshop which produced these vessels. On the other hand, we may surmise that most of the examples were produced in a local workshop, mainly because of the mix of various local decorations with Italian vessel forms. The handles which were decorated with a mask at their low end offered especially noteworthy information.

The Arycanda vessels must have been produced in a workshop which knew the Italian metal vessel tradition and could apply it to its own production. Unfortunately, it is impossible to determine its location with our present information. However, it is possible to assume that some part of the finds may have been produced in Arycanda, due to the remains of metal production found in the city.

Catalogue

Cat. no. 1: aryballos

Acc. no. Ary 77 TMCK 10, DN 77, grave no. 13.
Measurements. H. 7.3 cm, body diam. 4 cm, foot diam. 3.2 cm.

Cat. no. 2: oinochoe

Acc. no. Ary 90 M102, Trade Agora 90, no. 2.
Measurements. H. 20 cm, body diam. 13.1 cm, th. 0.15 cm and foot diam. 8 cm.

Cat. no. 3: jug

Acc. no. Ary 84 B 78, NT'84, Western Terrace.
Measurements. H. 18.5 cm, th. 0.2 cm and foot diam. 7.8 cm.

Cat. no.4: jug

Acc. no. Ary 80- 13, BH. 80, room no. 2.
Measurements. H. 18.5 cm, body diam. 12.5 cm and mouth diam. 7 cm.

Cat. no. 5: jug

Acc. no. Ary 84 B 77, NT'84 Western Terrace.
Measurements. H. 25 cm, th. 0.2 cm, neck diam. 8.5 cm and body diam. 15 cm.

Cat. no. 6: jug

Acc. no. Ary 92 M 292, BBY.'92.
Measurements. H. 37 cm, th. 0.2 cm, neck diam. 8.5 cm and body diam. 17.7 cm.

Cat. no. 7: basin

Acc. no. Ary 89 M 244, Slope House'89 4/3.
Measurements. H. 10.4 cm, body diam. 45 cm, th. 0.3 cm and foot diam. 12 cm.

Cat. no. 8: handle

Acc. no. Ary 88 M 94, Cistern'88.
Measurements. H. 10.7 cm and w. 3.6 cm.

Cat. no. 9: handle

Acc. no. Ary 90 M 57, Trad. Agora'90, room no. 2.
Measurements. H. 12.3 cm, w. 4.9 cm and handle 2.4 cm.

Cat. no. 10: handle

Acc. no. Ary 88 M 38, Trade Agora'88.
Measurements. H. 11.8 cm and w. 3.6 cm.

Cat. no. 11: handle

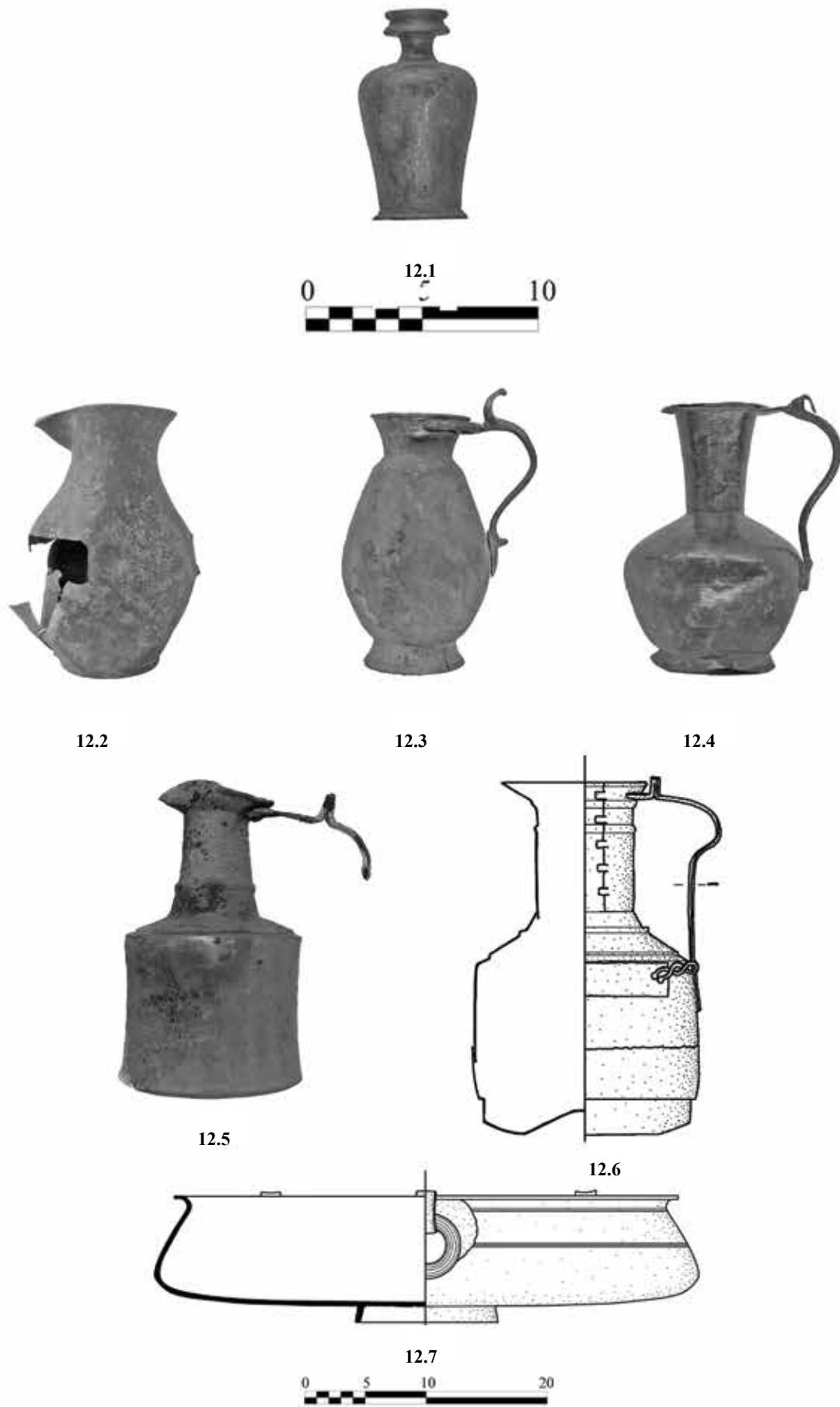
Acc. no. Ary 89 M 248, Slope House'89, 4/3 1:13.
Measurements. H. 6 cm and w. 1.1 cm.

Cat. no. 12: handle

Acc. no. Ary 2001 AE 515, HTD 2001.
Measurements. H. 8 cm and w. 2.3 cm.

Cat. no. 13: handle

Acc. no. Ary 88 M51, Trade Agora'88, no. 2.
Measurements. H. 18.6 cm, w. of handle 2.4 cm and th. 0.9 cm.



Figures 12.1-7. (1) An aryballos, acc. no. ARY 77 TMCK 10. (2) An oinochoe, acc. no. ARY 90 M102. (3) A jug, acc. no. ARY 84 B 78. (4) A jug, acc. no. ARY 80-13. (5) A jug, acc. no. ARY 84 B 77. (6) A jug, acc. no. ARY 92 M 292. (7) A basin, acc. no. ARY 89 M 244 (all of them by B.S.A. Oransay, 2011).



12.8



12.9



12.10



12.11



12.13



12.12



Figures 12.8-13. (8) A handle, acc. no. ARY 88 M 94. (9) A handle, acc. no. ARY 90 M 57. (10) A handle, acc. no. ARY 88 M 38. (11) A handle, acc. no. ARY 89 M 248. (12) A handle, acc. no. ARY 2001 AE 515. (13) A handle, acc. no. ARY 88 M51 (all of them by B.S.A. Oransay, 2011).

The Bronze Figurine of Hercules from Cremna in Pisidia (Southwestern Turkey)

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Abstract: Cremna, one of the most important cities of Pisidia is located in Çamlık village of Bucak district of the city of Burdur. No excavation work has been carried out except from a seasonal rescue excavation in the early 1970s. However, much illegal excavation works was done in the city between 1960 and 1990. Many artefacts from Cremna are exhibited in different museums like the Paul Getty in Los Angeles and the Römisch-Germanisches Zentralmuseum in Mainz. Similarly, there is a significant amount of antique work from Cremna in the Museum of Burdur. In this study, a bronze Hercules statuette, purchased by and kept in the depot of the Archaeological Museum of Burdur, is presented. The Hercules statue was found in the Cremna bath house/library construction and is exhibited in the Archaeological Museum of Burdur; the Hercules head shown on the coins of the city reveals that the Hercules cult became widespread together with the Roman colony movement in the city. The bronze Hercules statuette dated to the second/third century AD also is evidence that this cult became widespread.

Keywords: Bronze figurine of Hercules, cult of Hercules, Cremna, Pisidia, southwestern Anatolia.

Özet – Kremna’dan Bronz Herakles Figürini: Pisidia Bölgesi’nin önemli kentlerinden birisi olan Kremna, Burdur ili, Bucak ilçesi, Çamlık Köyü’nde yer almaktadır. 1970’li yılların başlarında birkaç sezonluk kurtarma kazısı dışında, herhangi bir kazı çalışması yapılmamıştır. Bununla birlikte 1960’lı yıllardan 1990 yılları arasında kentte yoğun kaçak kazı faaliyetleri gerçekleşmiştir. Ele geçen çok sayıda eserin yurtdışında Los Angeles’taki Paul Getty ve Mainz’deki Römisch-Germanisches Zentralmuseum gibi farklı müzelerde sergilendiği bilinmektedir. Aynı şekilde Burdur Müzesi’nde de kayda değer oranda Kremna’dan çıkarılmış eserler bulunmaktadır. Bu çalışmada satın alma yoluyla kazandırılmış Burdur Müzesi deposunda bulunan, Kremna’dan geldiği belirtilen bronz bir Herakles heykelciği tanıtılacaktır. Kremna’da Hamam/Kütüphane yapısında bulunan bugün Burdur Müzesi’nde sergilenen Herakles heykeli ve kentin sikkelerinde görülen Herakles başı, kentte Roma koloni hareketiyle birlikte Herakles kültürünün yaygınlaştığını ortaya koymaktadır. İ.S. 2–3. yy.’a tarihlediğimiz bronz Herakles heykelciği ise bu kültürün yaygınlaştığına dair bir başka kanıt oluşturmaktadır.

Anahtar Kelimeler: Bronz Herakles figürini, Herakles kültü, Kremna, Pisidia, Güneybatı Anadolu.

Introduction

Cremna, located in the Çamlık village of the Bucak district in Burdur is one of the cities of Pisidia. It gained more importance after it was made one of the five colonial cities in Pisidia with the name ‘Colonia Iulia Augusta Felix Cremna/Cremnensium’ given to it by Augustus (27 BC.-AD 14) after the death of the Galatian King Amyntas

(39–25 BC.).¹ After these dates, the territory of the city was extended and it is thought that a district called as Ceraetae, located in the northwest of the city, came under the domination of Cremna.² There was a great famine in the period of Aurelianus (AD 270–275) and he helped out

¹ Levick 1967, pp. 36–39.

² Metin 2014, p. 6.



Figure 13.1. The bronze figurine of Hercules from Cremna in Pisidia (by H. Metin, 2011).

the city.³ In the period of Probus (AD 276–282), Cremna was invaded by the Isaurian bandit Lydius. Lydius was able to resist against Rome for a long time by using the city's *acropolis* as a castle, but the commanders of Probus captured the city again when Lydius was killed by his own men. After this, Rome placed the ammunition of the army here by deporting some part of the people and dominated the city again.⁴ The ruins of most of the western walls and the Roman headquarters a few hundred meters away are the most significant evidence of the war. It is thought that the city was weakened by the invasions of the bandits from Isauria, earthquakes and plagues and as a result lost its importance.⁵ The most recent dated information about the city is that it sent a delegate to the Second Council of Nicaea in AD 787.⁶

The Imperial cult started to be observed in Cremna after the city came under domination of the Roman Empire as a result of Romanisation. Additionally, it is also understood that Roman gods, goddesses and heroes were worshipped together with local cults. The bronze Hercules statuette is important as it reinforces aspects of what we know about the Hercules cult in the city.

Description

The bronze Hercules statuette from Cremna was brought to the Archaeological Museum of Burdur through acquisition from Bekir Baş (fig. 13.1). Generally rough work is observed on the statue. Although the statuette, produced using the solid casting technique, at first resembles Jupiter because of its hair and beard, a massive lion skin hanging from the left arm confirms our opinion that it is Hercules. Furthermore, there are several reliefs in Pisidia that portray Hercules as bearded.⁷ The height of the statuette is measured as 6.3 cm and the width as 2.6 cm. Its surface shows evidence of corrosion. The figure has several damaged limbs: the right arm is broken at the bottom of the biceps, the right leg from the bottom of the knee and the left leg from the ankle. Although the details are not distinct, the long beard that becomes pointed downward from the temporal through the chin can be partly seen. The figure, the tubby body of which was processed more frontally and the head in profile has its feet shoulder-width apart. The right arm is held in an upright position from the shoulder. The left arm is composite with the body, bent at the elbow and parallel to the ground and there is a lion-skin hanging on its arm. The body is muscled front and back, but the details are not distinct. The neck is thick and strong, the head is large. The deep groove along the spine in the centre of the back, which is modelled quite deeply because of the

³ Levick 1967, p. 102; İnan 1970, p. 52; as well as Özsaıt 1985, p. 134.

⁴ Zosimus 1814, pp. 69–70; as well as Mitchell 1995, p. 210.

⁵ Metin 2013, p. 217.

⁶ Levick 1967, p. 102; as well as Mitchell 1995, p. 219.

⁷ Metin 2016, pp. 1139–41, figs. 1–4.

movement of the body. He has an oval face; but its details are not distinct. Although the details of the hair are not clearly distinct, as it is rather eroded, its style is rather distinct: it is combed forwards and there is a crown from the forehead to the back of the neck. Probably, there was a club in the raised left hand.

The work, typologically, differs from most other representations of Hercules. Generally among bronze statuettes, Hercules is portrayed with his club in his right hand, either propped on the ground or leaning against his shoulder, as well as holding a lion skin on his left shoulder as seen in the Cremna example.⁸ In some examples, Hercules is shown leaning his club on his left shoulder. Rarely, there are statuettes in which Hercules leans his club on his left shoulder.⁹ In these examples, there is a matter of stability. In the figure from Cremna, the right hand is raised above his head. This may indicate that the Cremna statuette is part of a group, showing a certain mythological event. Two bronze statuettes exhibited in the Museums of Bonn¹⁰ and Zurich¹¹ describe the struggle of Hercules with the Nemean Lion. The right arm of Hercules is described as raised in some examples from Bonn. But, differently, the left hand that holds the lion skin is described to forward.¹²

The Hercules statuettes of the first century AD are of better quality when compared with the later examples and the body lines are more exaggerated.¹³ There must be mass production of these statuettes in order to meet the heavy demand for them after the first century AD. Therefore, the details are less well modelled in those statuettes when compared with the early examples. The excessive usage of moulds also has an effect on this details. The possibility that the residuals of the moulds for some bronze statuettes were not cleaned enough could also be explained by mass production. The Hercules cult expanded in Pisidia, especially in the second and third centuries AD, and this helps us to date the bronze Hercules statuette into the second-third centuries AD.

The cult of Hercules in Cremna

As in many regions, the Hercules cult attracted attention together with other gods and goddesses in Pisidia. Two different Hercules types are observed in the region. The first is one matching the description of the Anatolian horse-rider god;¹⁴ the other is the description that reflect the familiar Greek tradition. In the second type, whether or not Hercules was described

with the attributes of a god cannot be determined.¹⁵ But it is observed that in a votive stele from Pisidia Hercules was blessed as god.¹⁶

The earliest evidence that shows the Hercules cult in the ancient city of Cremna is found on coins. The earliest coins in the city date to the first century BC. With the invasion of Cremna by King Amyntas of Galatia in 39 BC., a mint was established in the city and coins were minted in the name of the king. The images of gods and goddesses are generally observed on these coins.¹⁷ The figures of gods and goddesses were mostly included on the front and back sides of the autonomous coins after the city became a colonial city in the period of Augustus (COLONIA IVLIA AVGVSTA FELIX CREMNA/CREMNENSIVM), 'COL CR', 'COL CREM', 'COL CREMNA). The emperor's heads were described in the coins of Cremna along with the Hadrianus period.¹⁸ Coins of the colonial period in the city show the bearded Hercules head on the observe and an eagle with spread wings on the reverse.¹⁹

Important evidence of the Hercules cult in Cremna was found in the bath house/library building in the centre of the city. The inscribed pedestal and the biggest sculpture include in the structure belong to a Hercules statue that is made of fine grained marble (**fig. 13.2**). In the inscription on the pedestal (1.90 m. in height) it is written that the colony erected the statue of Hercules during the duumvirate²⁰ of Flavius Avidius Fabianus Capitonianus Lucius and Rutilianus Longillianus Callippus (**fig. 13.3**).²¹ The ornaments on the on the pedestal are dated to the period of Augustus or Tiberius.²² The Hercules sculpture from this pedestal, which is exhibited in the Museum of Burdur,²³ has a height of 2.08 m. and a width of 1.45 m. The head is missing, as is the right hand from the wrist. His feet are apart. He holds a lion-skin on his left arm bent at the elbow. Probably, he held the club in his right hand. Because the edge of the lubutos is observed to be on the surface, between the right leg and the bull head that is near the right leg.²⁴

¹⁵ Karayaka 2007, p. 147.

¹⁶ Hercules is portrayed with club in an offering stele, obtained from Keçili village of Bucak district, in Burdur. From the two lines of inscription, it is understood that it is dedicated to Hercules. The acc. no. of this statuette in Archaeological Museum of Burdur is K.114.18.12. In a rock relief that is discovered in Aşağı Müslümler village of Burdur, a four lines of inscription was found on the right of Hercules. Although the inscription is pretty eroded, it must be connected with the cult: Metin 2016, p. 1140, fig. 3.

¹⁷ Head 1911, p. 707.

¹⁸ Köker 2007, p. 678.

¹⁹ Von Aulock 1964, no. 5082.

²⁰ It is a commission of two people that commissioned to carry on the works in the Roman colonies: Bean 1970, p. 100.

²¹ Bean 1970, p. 100, no. 2; as well as Horsley 1987, pp. 53–54, pls. 9a-c, no. 2.

²² Horsley 1987, p. 53; as well as Mitchell 1995, p. 156.

²³ The acc. no. of this pedestal in Archaeological Museum of Burdur is 8029.

²⁴ İnan 1970, p. 71.

⁸ Kunze 1985, pp. 89–90, pl. 41; Menzel 1986, p. 29f, figs. 32–35; Kızıgüt 2003, pp. 162–67, pls. 27–28; figs. 2–4; as well as Kaufmann-Heinimann 2004, p. 256, pl. 13.

⁹ Malgieri 2008, pp. 24–29, fig. 2.

¹⁰ Menzel 1986, p. 29f, fig. 32, pl. 60.

¹¹ Kaufmann-Heinimann 1977, pp. 33–35, figs. 17–19.

¹² Menzel 1986, figs. 33–36, pls. 62–63, and 66–71.

¹³ Kaufmann-Heinimann 1977, no. 48; Kızıgüt 2003, pp. 164–66, pl. 28, fig. 3ab.

¹⁴ Delemen 1999.

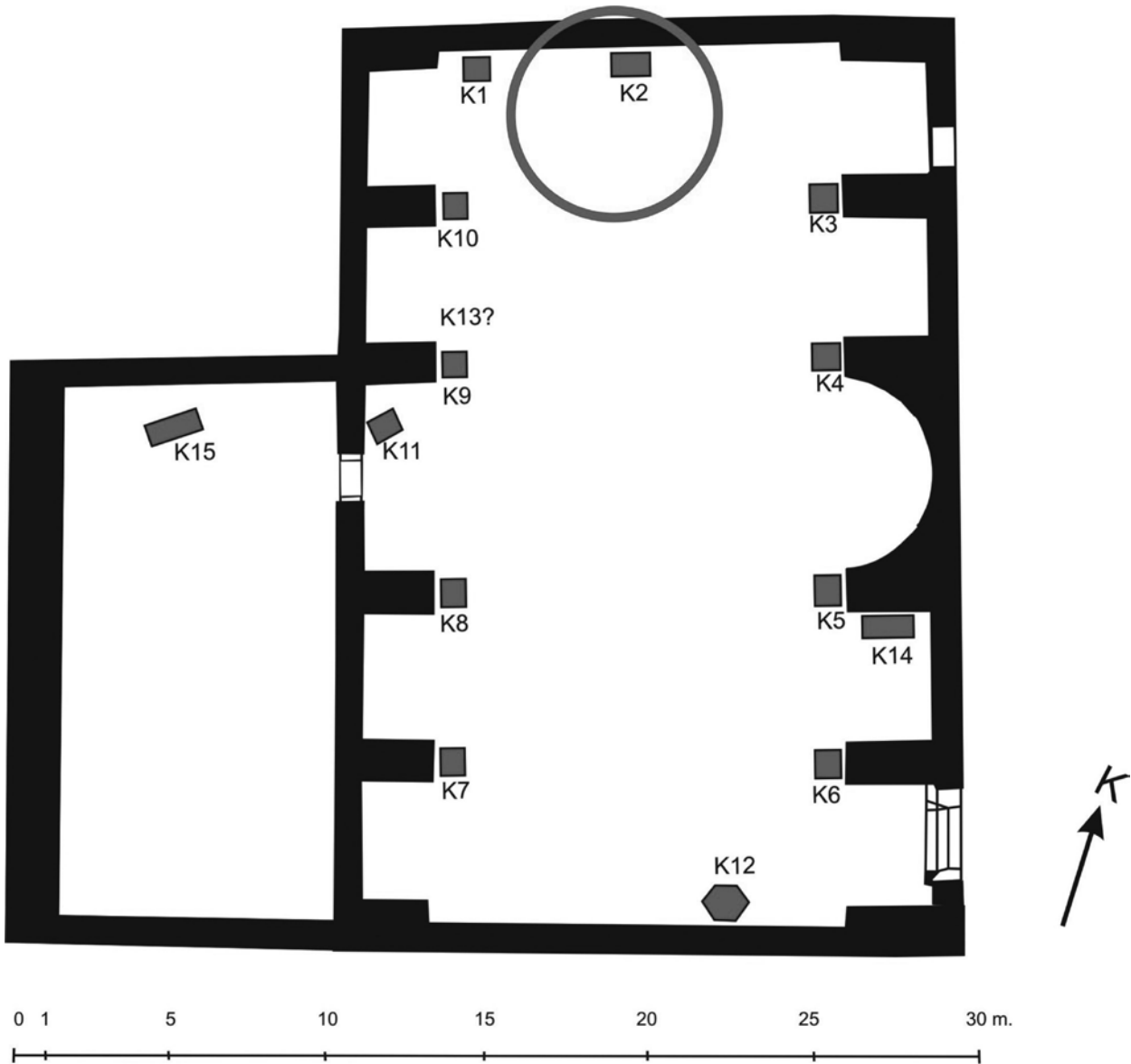


Figure 13.2. Location of the inscribed pedestal with the statue of Hercules in the Baths/Library building (after İnan 1970, fig. 7) (by H. Metin, 2011).

The Hercules cult, first seen in the early period of the empire as a result of the Roman colonisation movement (and prior to this approved as the local rider-god cult of Kakasbos), became widespread in the second/third century AD and was also a common figure among the figurative small finds. Is the Cremna bronze a cult object, or is it an offering? It is not possible to answer this question for now. No doubt more accurate information will be obtained when subsequent scientific excavations are performed in the city.

Conclusion

The inscribed pedestal included in the bath house/library building in Cremna and the Hercules sculpture on it is the most important evidence found thus far of the Hercules cult in the city. The fact that Hercules was portrayed larger than the other sculptures in the structure also show the importance of the Hercules cult. Another important piece

of evidence about the Hercules cult in Cremna is the head of Hercules was shown on the obverse of the bronze coins obtained in the city.

The bronze Hercules statuette in Cremna, together with the inscriptions, statuettes and coins proves that the iconography of Hercules in Cremna was different to Herculeses from other places. The head of the statuette that turns to the right, the lion-skin hanging on the left arm, and the muscled body are among the typical iconographic features of Hercules. However, the thick neck and the tubby physique reflects the local features. Nevertheless, it must be said that it is not good scholarship to generalise based on a single work. In the future, when excavations in Cremna have started, more Hercules statuettes will doubtless be uncovered; the iconographic features will be determined more clearly and so more accurate data will be obtained about these cult objects.

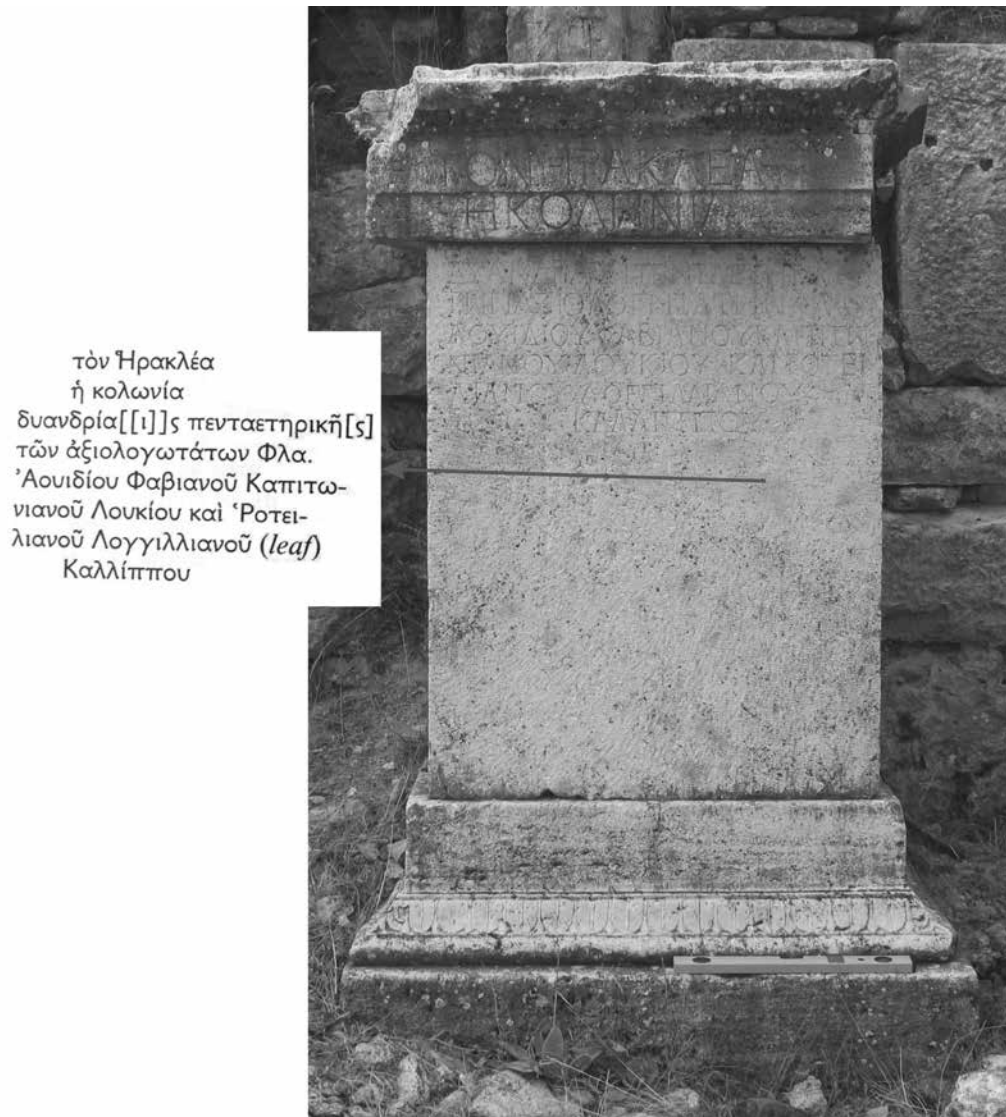


Figure 13.3. The inscribed pedestal (by H. Metin, 2011).

In the Pisidia region, including Cremna, it is observed that the Hercules cult was widespread in the second/third century AD. Probably, as this cult was widely accepted by the veteran soldiers among the colonists that were posted in the colonial cities at the same time, the veteran soldiers were effective in spreading the cult.

Acknowledgments

I would like to thank the Museum Director of Burdur, Mr Hacı Ali Ekinci and the curator, Mr Arif Küçükçoban, as they gave the permission to study the bronze Hercules statuette from Cremna in the Museum of Burdur. I also would like to thank Mr Salih Soslu who helped during my museum studies.

Surgical Instruments from Allianoı in Mysia (Western Turkey)

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Abstract: Allianoı is located in Paşa Ilıcası, close to Bergama (Pergamum) in Izmir. Today Allianoı is disappeared under a dam and rescue work was pursued in a wide area. Excavations of Allianoı at 1998–2006 were directed by Professor Ahmet Yaraş. For my doctoral thesis, I studied surgical tools which were excavated in Allianoı between 1998–2006. The surgical instruments of Allianoı provide significant and considerable information about the typology and technology of ancient surgical instruments, the history of medicine and the relationship between settlement and health. If compared with other contexts, the medical instruments found in Allianoı are superior in assortments and quantity, and can enlighten us about the medical instruments used in Anatolia in terms of type, variation and origin, thus making an important contribution to quantitative data. The medical instruments which were obtained the in Allianoı excavations have been classified according to their functions and forms. This study is a brief summary of my doctoral thesis which was managed by Professor Elif Tül Tulunay and accepted in 2009.

Keywords: Ancient surgical instruments, Greco-Roman medicine, Greco-Roman pharmacy, Roman period, Allianoı, Mysia, western Turkey.

Özet – Allianoı'den Cerrahi Aletler: Allianoı, Paşa Ilıcası'nda, Bergama'ya (Pergamon) yakın bir konumdadır. Allianoı bir baraj tarafından değil, Yortanlı'nın fonksiyonel olmayan sulama sistemi tarafından kaybolmuştur. Kurtarma kazıları, idealist bir ekibin fedakar çabaları ile baraj gölü alanının ortasında kalan geniş bir alanda gerçekleştirildi. 1998–2006 yılları arasında Allianoı kazıları Prof.Dr. Ahmet Yaraş tarafından yürütülmüştür. Doktora tez çalışmamda Allianoı'de 1998–2006 yılları arasında ortaya çıkarılan cerrahi araçlar incelenmiştir. Allianoı'nın cerrahi aletleri, antik cerrahi aletlerin tipolojisi ve teknolojisi, tıp tarihi ve yerleşim ile sağlık arasındaki ilişki hakkında önemli ve dikkate değer bilgiler sağlar. Diğer buluntu merkezleriyle karşılaştırıldığında Allianoı tıbbi aletleri çeşitlilik ve miktar bakımından üstün olduklarından, bu yüzden Anadolu'da kullanılan tıbbi aletleri tür, çeşitlilik ve köken bakımından aydınlatmakta ve nicel verilere önemli katkılar sağlamaktadır. Allianoı kazılarında elde edilen tıbbi aletler, işlevlerine ve formlarına göre sınıflandırılmıştır. Bu çalışmada Prof. Dr. Elif Tül Tulunay tarafından yönetilen ve 2009'da kabul edilen doktora tezinin kısa bir özetidir.

Anahtar Kelimeler: Antik cerrahi aletler, Greko-Romen tıbbi, Greko-Romen eczacılığı, Roma Dönemi, Allianoı, Mysia Bölgesi, Batı Anadolu.

Allianoı is located in Paşa Ilıcası, close to Bergama (Pergamum) in Izmir. Today it is disappeared under a dam and the rescue work was pursued in a wide area. Excavations of Allianoı at 1998–2006 were directed by Professor Ahmet Yaraş. In my doctoral dissertation,¹ surgical tools which were unearthed in Allianoı between years 1998–2006 were studied. The surgical instruments of Allianoı provide significant and considerable information about typology and technology of ancient surgical instruments, history

of medicine and the relationship between settlement and health. If compared with other contexts Allianoı medical instruments are superior in assortments and quantity so they enlighten us about the medical instruments used in Anatolia in terms of type, variation and origin and make an important contribution to quantitative data. Medical instruments, which were obtained in Allianoı excavations, are classified according to their functions and forms. This study is a brief summary of my doctoral thesis which is managed by Professor Elif Tül Tulunay and accepted in 2009. I thank Professor Elif Tül Tulunay, who directed my doctoral thesis

¹ Baykan 2009a, pp. 40–75; and Baykan 2012b.

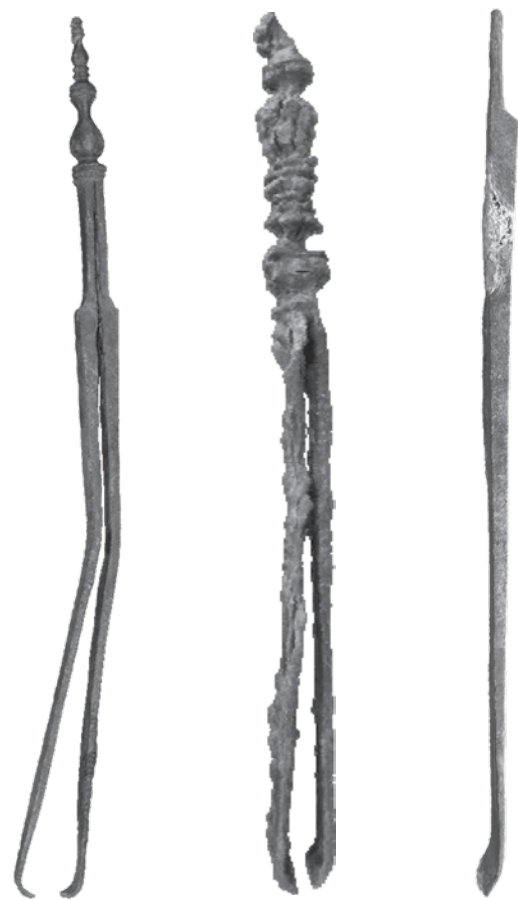
‘Surgical Instruments of Allianoi’, and Professor Ahmet Yaraş, who permitted me to study the metals of Allianoi.

Research on ancient medical instruments are mostly limited to the context of the tombs of physician. The widely known medical instruments in the archaeological literature are the ones found in Pompeii which have been published and frequently quoted since the 18th century.² Until the excavations at Allianoi, no extensive discovery of medical instruments has been reported in excavations in the settlements in Anatolia. This situation may arise from the lack of investigating or publishing the metal pieces found in the excavations in general. Although more than sixty physicians’ tombs have been found in Europe, only three physicians’ tombs, two of which are from Ephesus and one from Colophon, have been identified in Anatolia belonging to the Roman period. Research into ancient medical instruments began when a cache of these were found for the first time in Pompeii and Herculaneum in; however, the first scientific publication on the finds from Pompeii was only published in 1994.³ They were evaluated thoroughly by Lawrence J. Bliquez and in his study 382 pieces in total were catalogued; of all these pieces, 223 of them were from Pompeii, seven of them were from Herculaneum and 152 of them from unidentified places.⁴ Spoons, hooks, probes with flat ends, forceps and scalpels were found in Pompeii, but lithotomy, cataract, trepanation and staphylotomy instruments were not found. The reason for the relatively small number of Herculaneum findings is explained by the timeline of the Vesuvius eruption and the fact that the citizens of Herculaneum had more time than those of Pompeii to evacuate.⁵

Recently we learned that next to certain sites such as Rimini⁶ or Marcianopolis which had a surgical and medical contexts, as the finds of medical instruments indicate, Allianoi was also significant in terms of surgical intervention. In this structure, an important context, which was scattered around the place from a wooden box in my opinion, in terms of instrument variation was found. In this context, this consists of *Staphylagras*, forceps, tongue press, tube probe, elevator and a probe case. Because of the similar ones as the other instruments, it was ascertained that the context was a kit used for uvula and hemorrhoidectomy. To be able to identify **fig. 14.1**, whose function is controversial, first of all, the instruments in the kit should be distributed for the two interventions (uvula and hemorrhoid). Probe case, which indicates general usage and *staphylagras* (**fig. 14.5**) and forceps (**figs. 14.2-4**), must have been used in both of them, tongue press must have been used for only the uvula and tube probe must have been used as anal enema after hemorrhoidectomy. In my



Figure 14.1. A surgical instrument from Allianoi (by D. Baykan, 2011).



14.2

14.3

14.4

Figures 14.2-4. Three forceps from Allianoi (by D. Baykan, 2011).

² Künzl 1982, pp. 1–131; Künzl 1983; Künzl 1996, pp. 2433–639; Künzl 1998, pp. 71–152; Künzl 1999, pp. 575–92 and also Künzl 2002; Majno 1991, pp. 339–424; Meyer-Steineg 1912, pp. 5–49, figs. 1–8; as well as Milne 1907, pp. 14–170 etc.

³ Bliquez 1994.

⁴ Bliquez 1994.

⁵ Künzl 1999, p. 585.

⁶ Jackson 2003, pp. 312–21.



Figure 14.5. A *staphylagras* from Allianoi (by D. Baykan, 2011).

opinion **fig. 14.2**, which has toothed opening, is appropriate to outer hemorrhoid and *staphylagra* is appropriate to inner hemorrhoid rather than uvula because of the angle of its opening. For inner hemorrhoid interventions, an anal speculum is needed. In the previous studies, the type suggested for anal speculum's tip providing anal extension was between 7 and 8 cm; when we consider that this instrument is used for hemorrhoidectomy (from outside to inside) the first 7 cm cannot be intervened and apart from this, the rounded finish of the tip would harden to work inside. In my opinion, the defined type is the doublet of the known vaginal speculum's triple and quartiles tips and a special anal speculum type for **fig. 14.1** hemorrhoidectomy. Iron mouthed *staphylagra* and wooden grip type evidence in the kit were located for the first time. In my opinion, as this type's tip was warmed to cut uvula and the iron tip was used to cauterize, the grips were wooden in order not to burn the tongue, lips or cheeks during the operation. This *staphylagra* is the only sample showing that *staphylagra* was used as a cutter and a cauterizer in the Roman period. Instead of burning with caustic, using *staphylagra* for cutting and cauterizing supports the proposal of **fig. 14.1** which I associate with hemorrhoid rather than caustic application. This room (place b4) is used for uvula and hemorrhoidectomy. Findings have proved some places' surgical use purposes. On the north side of İlya(s) Stream, on the yard type structure, which was between the bridge and the north hot spring, in the most important context that had been found *staphylagras* (**fig. 14.5**), forceps, tongue presser (**fig. 14.6**), tube prober, elevator (**fig. 14.7**), a probe box piece and an object which I think had been used as an anal speculum for inner hemorrhoid interventions. It has been understood that this Place (b4) was used for staphyloctomy and hemorrhoidectomy; in the b7, which belongs to this structure, was used for urology



Figure 14.6. A tongue presser from Allianoi (by D. Baykan, 2011).

and breaking piles; b5 was used for eye surgery; c1 was used for suture; in the north of the structure, cupping/phlebotomy were done and the rooms on the second floor of the hot spring were related to surgery. Apart from these, in 365 medical instruments, there is some scalpels (**figs. 14.8-12**), a catheter (**fig. 14.13**), needles (**fig. 14.14**) and needle holder (**fig. 14.15**).

In this thesis where Anatolian settlements are investigated in terms of medical instruments for the first time, the



Figure 14.7. A tube prober, elevator from Allianoi (by D. Baykan, 2011).



14.8



14.9



Figure 14.13. A catheter (by D. Baykan, 2011).



Figure 14.14. A needle (by D. Baykan, 2011).



14.10



14.11



14.12



Figure 14.15. A needle holder (by D. Baykan, 2011).

Figures 14.8-12. Scalpels (by D. Baykan, 2011).

typology of the medical instruments found in Allianoi has been constituted, it has been proved that some instruments were made of bronze and iron; some new suggestions have been made about the materials and construction techniques of the instruments. More extensive number of medical instruments from Allianoi definitely introduces the relation of Allianoi with surgery. Here 195 instruments found in 11 physician tombs; thus, ancient medical instruments from Allianoi emphasize the importance of Anatolia in Greco-Roman medical history.

Bronze Objects Related to the Cult of Aesculapius from Allianoi in Mysia (Western Turkey)

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Abstract: Allianoi is located in Paşa Ilıcası near Pergamum. This outstanding Roman archaeological site is submerged in the irrigation set of Yortanlı now. Since 1998, rescue work has been pursued in the reservoir site by a team led by Professor Ahmet Yaraş. This study produces some bronze votive objects and surgical instruments unearthed in Allianoi between 1998 and 2006 and belonging to the cult of Aesculapius. In Allianoi, were obtained a complex plan as a result of the excavation 9 seasons. Architectural remains and archaeological finds, as soon as proved settlement that a has health-related. In Allianoi, uncovered epigraphic and sculptural finds which are in relation with Aesculapius, prove the relationship between settlement and health-related.

Keywords: Bronze small finds, votive objects, Telesphoros, Aesculapius, Galen, Allianoi, Mysia, western Turkey.

Özet – Allianoi’den Asklepios Kültü ile İlgili Bronz Objeler: Allianoi, Pergamon yakınlarındaki Paşa Ilıcası’nda yer almaktadır. Bu olağanüstü Roma arkeolojik alanı şimdi Yortanlı barajı göl alanı altında kalmıştır. 1998 yılından beri, bu alanda Prof. Dr. Ahmet Yaraş’ın yönetiminde bir ekip tarafından kurtarma kazıları sürdürülmüştür. Bu çalışmalarda, 1998–2006 yılları arasında Allianoi’de ortaya çıkarılan ve Asklepios kültüne ait bazı bronz adak objeleri ve tıp aletleri açığa çıkarılmıştır. Allianoi’de, 9 kazı mevsimi sonucunda karmaşık bir plan elde edilmiştir. Mimari kalıntılar ve arkeolojik buluntular, en kısa sürede yerleşimin kanıtlandığı Allianoi’de, ele geçirilen Asklepios ile ilişkili epigrafik ve heykel parçaları, yerleşim ile sağlıkla ilişkili olan bağlantıyı ispatlamaktadır. Mimari kalıntılar ve arkeolojik buluntular, yerleşimin sağlıkla ilgili olduğunu gösterir niteliktedir. Allianoi’de, Asklepios ile ilişkili ele geçen epigrafik ve heykel buluntuları, yerleşim ve sağlıkla arasındaki ilişkiyi kanıtlamaktadır.

Anahtar Kelimeler: Bronz küçük buluntular, adak objeleri, Telesphoros, Asklepios, Galenos, Allianoi, Mysia Bölgesi, Batı Anadolu.

Allianoi is located in Paşa Ilıcası near Pergamum. This outstanding Roman archaeological site is submerged in the irrigation set of Yortanlı now. In Allianoi, were obtained a complex plan as a result of the excavation performed nine seasons (**fig. 15.1**). Architectural remains¹ and archaeological finds,² as soon as proved settlement that a has health-related. In Allianoi, uncovered epigraphic³ and sculptural finds⁴ which are in relation with Aesculapius, prove the relationship between settlement and health-

related. Since 1998, rescue work has been pursued in the reservoir site by a team led by Professor Ahmet Yaraş. This study produces some bronze votive objects and surgical instruments unearthed in Allianoi between 1998 and 2006 and belonging to the cult of Aesculapius.⁵

All anatomic votives⁶ are informative for ancient medicine. Models of feet, legs, hands, arms and bodies were dedicated as votives, for rheumatism; eyes,⁷ ears and sex organs are dedicated for surgery. I think, for a place

¹ Baykan 2005b, pp. 46–51; Baykan 2009b, pp. 48–50; Yaraş 2001, pp. 106–11, figs. 1–13; Yaraş 2002, pp. 463–78; Yaraş and Baykan 2005, pp. 51–62; as well as Yaraş, Baykan and Karaca 2008, pp. 71–84.

² Baykan 2002, p. 76; Baykan 2005a, pp. 447–52; Baykan 2009a; Baykan 2010b, pp. 141–52; as well as Baykan 2011, pp. 256–64.

³ Yaraş and Erten 2008, pp. 83–91, figs. 24–25.

⁴ Yaraş 2001, pp. 105–18.

⁵ I thank Professor Elif Tül Tulunay for directed my doctoral thesis entitled as ‘Surgical instruments of Allianoi’ and Professor Ahmet Yaraş who gave the permission to study the metals of Allianoi.

⁶ Lang 1977, p. 15f; Asal 2002, pp. 73–82; as well as Kongaz 2002, pp. 83–87.

⁷ Yaraş and Erten 2008, pp. 83–91, figs. 24–25.



Figure 15.1. Excavated areas in Allianoi in Mysia (by D. Baykan, 2011).



M.02-115

Figure 15.2. A bronze foot (by D. Baykan, 2011).

with healing water like Allianoi the presence of rheumatic votives is easily explained. For those reasons, legs made of terracotta and bronze were found in Allianoi. A bronze foot (M.02–115) (fig. 15.2) found in Allianoi dates to the second century AD.

Some votives are associated with the cults of Aesculapius, Hygieia or Telesphoros. Two heads of Aesculapius and one of Hygieia were also found in Allianoi.⁸ The National Museum of Athens also has some bronze Telesphoros figurines (fig. 15.3). We have a bronze Telesphoros figurine (M.02–10) from Allianoi (fig. 15.4). Bronze figurines usually are mounted on a base, as the National Museum of Athens examples are (fig. 15.3). The Allianoi Telesphoros was badly preserved because it was found in a water channel. A bronze base (M.05–67) was found in Allianoi near to the bronze Telesphoros figurine (fig. 15.5). For this reason, I made a restoration with the base and the figurine. The proportion of the bobbin shaped base is appropriate to the bronze Telesphoros figurine (fig. 15.6). The most well-known attribute of health and Aesculapius is a snake. A snake-shaped trail can be seen on the surface of a triangular bronze object (All.mb-639) from Allianoi (fig. 15.7). Presumably, this bronze object is a piece of a health votive. The Telesphoros figurine

⁸ Yaraş 2001, pp. 105–18.



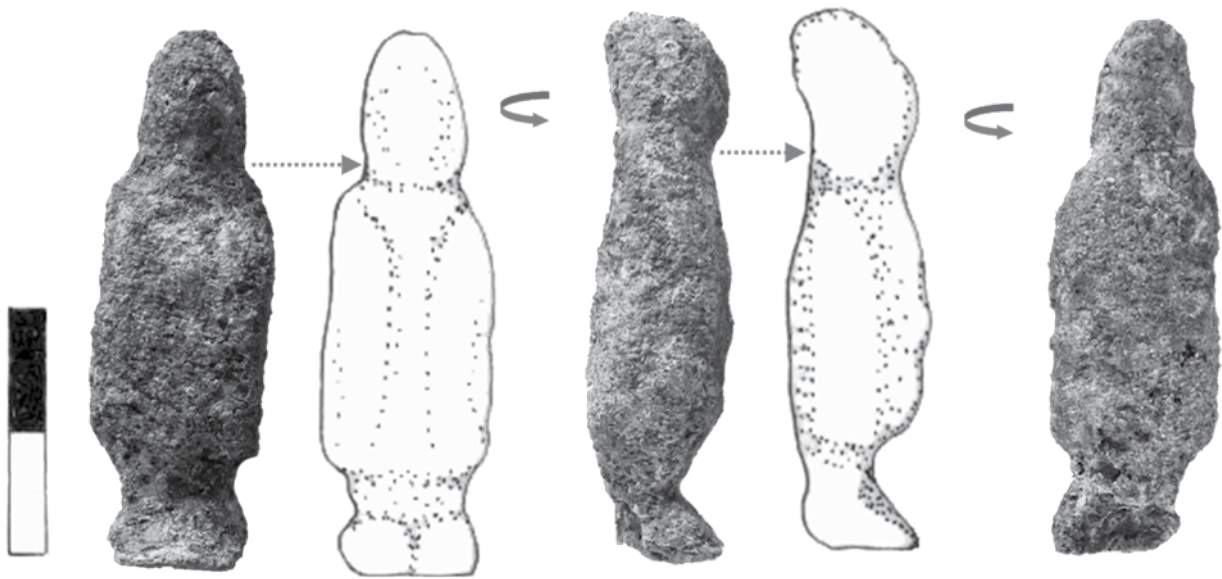
Figure 15.3. Two bronze Telesphoros figurines. National Museum in Athens (by D. Baykan, 2011).

(M.02–10/fig. 15.4), base (M.05–67/figs. 15.5-6) and votive piece (All.mb-639/fig. 15.7) all date to between the end of the first century AD and third century AD.

Research on ancient medical instruments are mostly limited to objects found in the tombs of physician. Until Allianoi findings, no extensive collection of medical instruments has been found in Anatolia. As part my work (since 1999) on nearly 3000 metal objects found in Allianoi, I selected 365 medical instruments. Some of these medical instruments are decorated with a snake, the most well-known attribute of Aesculapius. Two examples of medical instruments with a snake are illustrated here, first one with a band in the centre of the instrument (All.mb-116/fig. 15.8) and the other is incised (All.mb-50/fig. 15.9).

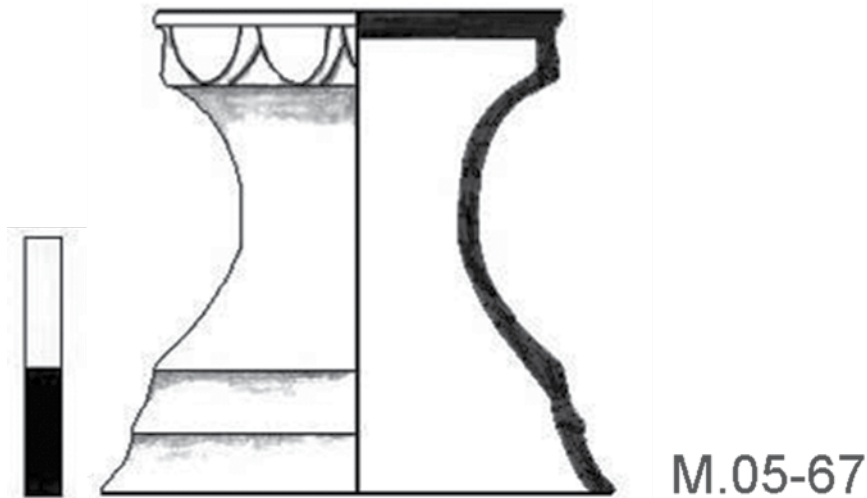
When looking at the findspots in Allianoi of these, the plan is fragmented (fig. 15.10). By assessing the different contexts, we can observe some differences in distributions; there are three categories of finding places (fig. 15.10). First findspot is nearly empty, second is found with a lot of surgical instruments, third one has a pharmacological context (fig. 15.10). If this is evaluated, the first area is thermal complex, the second area is probably a hospital or *valetudinarium* (fig. 15.11) which I proposed,⁹ third is places for medical or pharmacological treatment.

⁹ Baykan 2009b, pp. 48–50.



M.02-10

Figure 15.4. A bronze Telesphoros figurine from Alliano (by D. Baykan, 2011).



M.05-67

Figure 15.5. A bronze base excavated near to the bronze Telesphoros figurine in Alliano (by D. Baykan, 2011).

It is understood that sites like Alliano, where numerous medical instruments were found (directly related to surgery), had nothing to do with psychotherapy which was applied in Asclepeions where temple medicine was applied with limited surgery. In the research of analogy and contexts, it has been seen that the medical instruments found in the settlements, were found in the places related to medicine in the cities like Pompeii, *valetudinarium* (military hospital) or physician's house. It is known that Alliano is not a city which spreads to a larger area than the physician's house(s). It is early to interpret the whole settlement as a *valetudinarium* even if

decumanus and *cardo*, which form the 'T' plan of Rome garrison settlements, are in Alliano. We know¹⁰ that Galen¹¹ performed surgery on gladiator in Pergamum and he was proud of his success contrary to his predecessors' treatments, which often resulted in death. It has not been discussed in detail before where in Pergamum, and how, Galen performed these surgical interventions. In my

¹⁰ Carter 2004, pp. 41–68; Jackson 1999, p. 126; as well as Radt 2002, pp. 45–46 and 239.

¹¹ Gal. iii. 2–3.

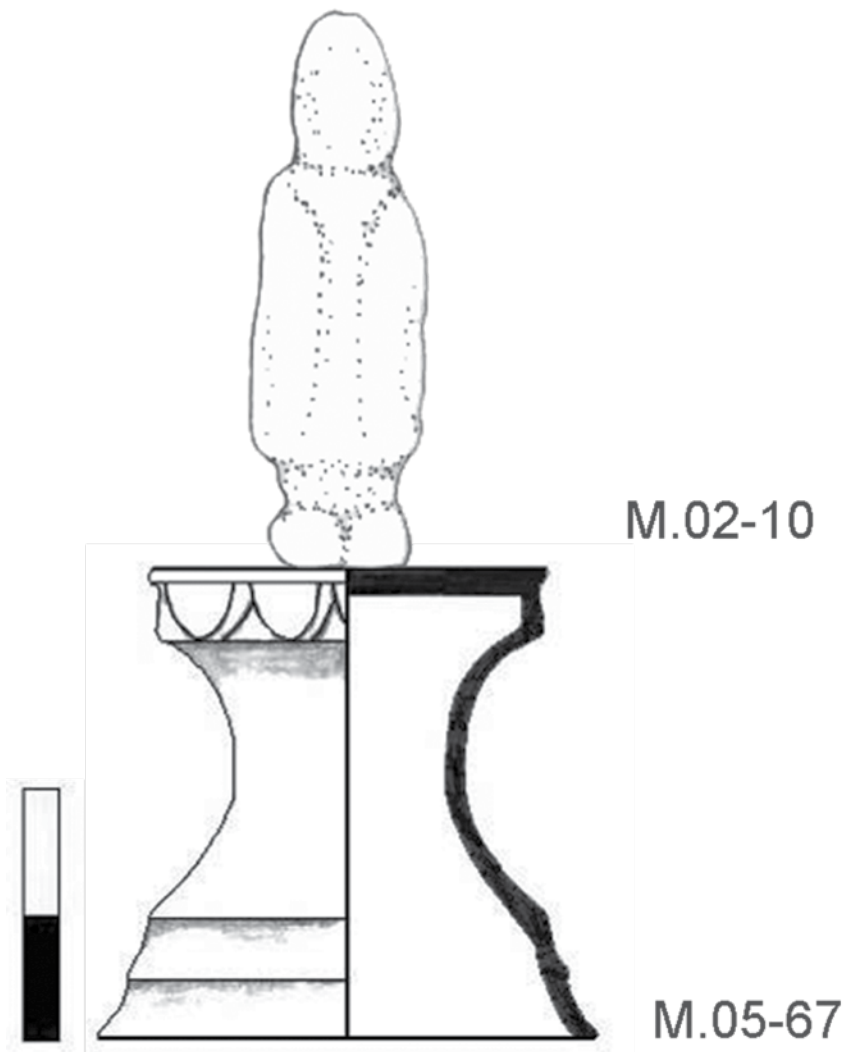


Figure 15.6. Reconstruction of the bronze Telesphoros figurine (by D. Baykan, 2011).

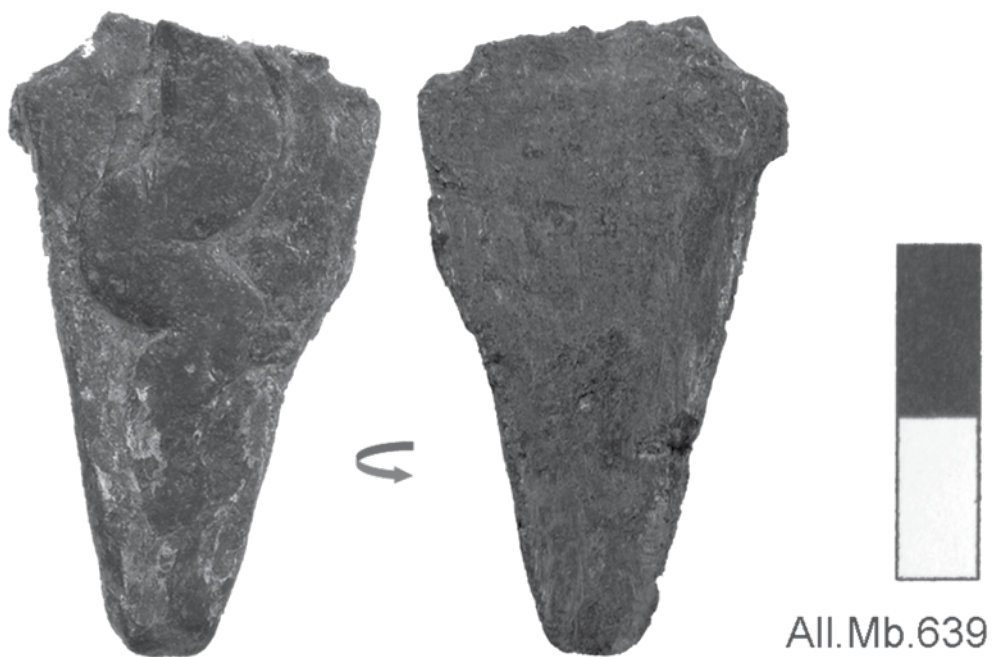


Figure 15.7. A triangular bronze object (by D. Baykan, 2011).

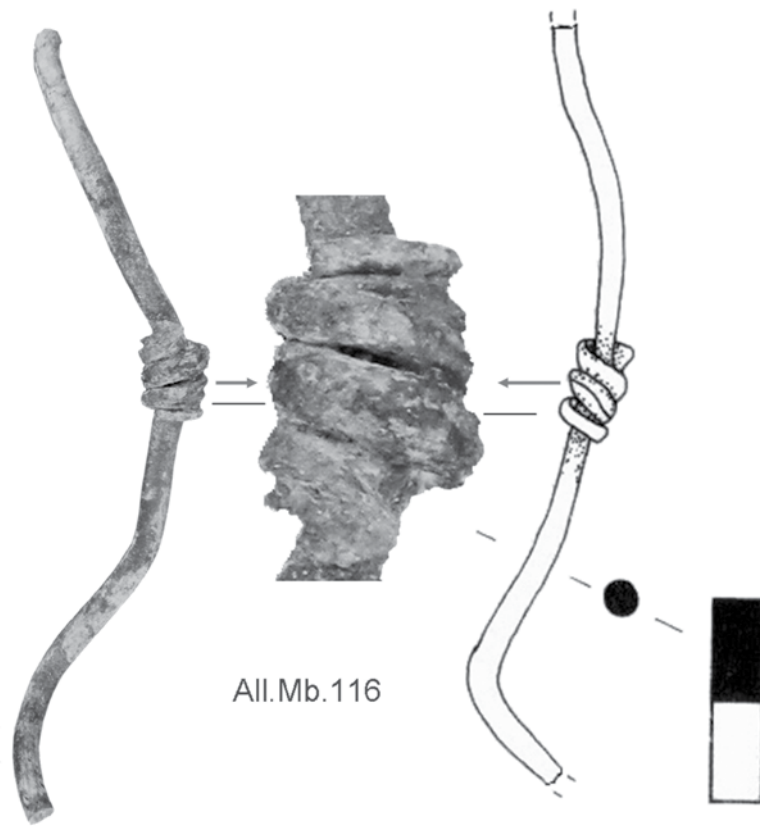
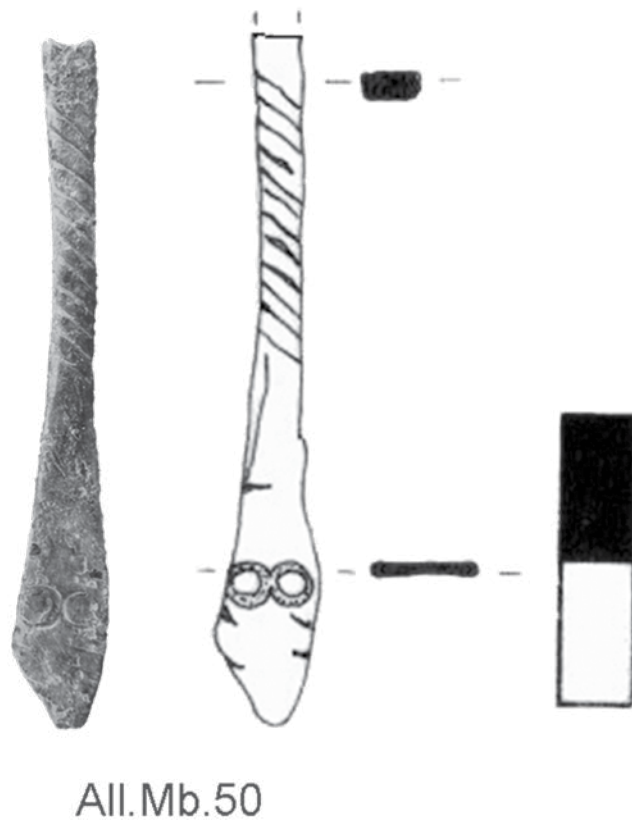


Figure 15.8. A medical instrument from Alliano (by D. Baykan, 2011).



Figures 15.9. A medical instrument with an intertwined snake from Alliano (by D. Baykan, 2011).

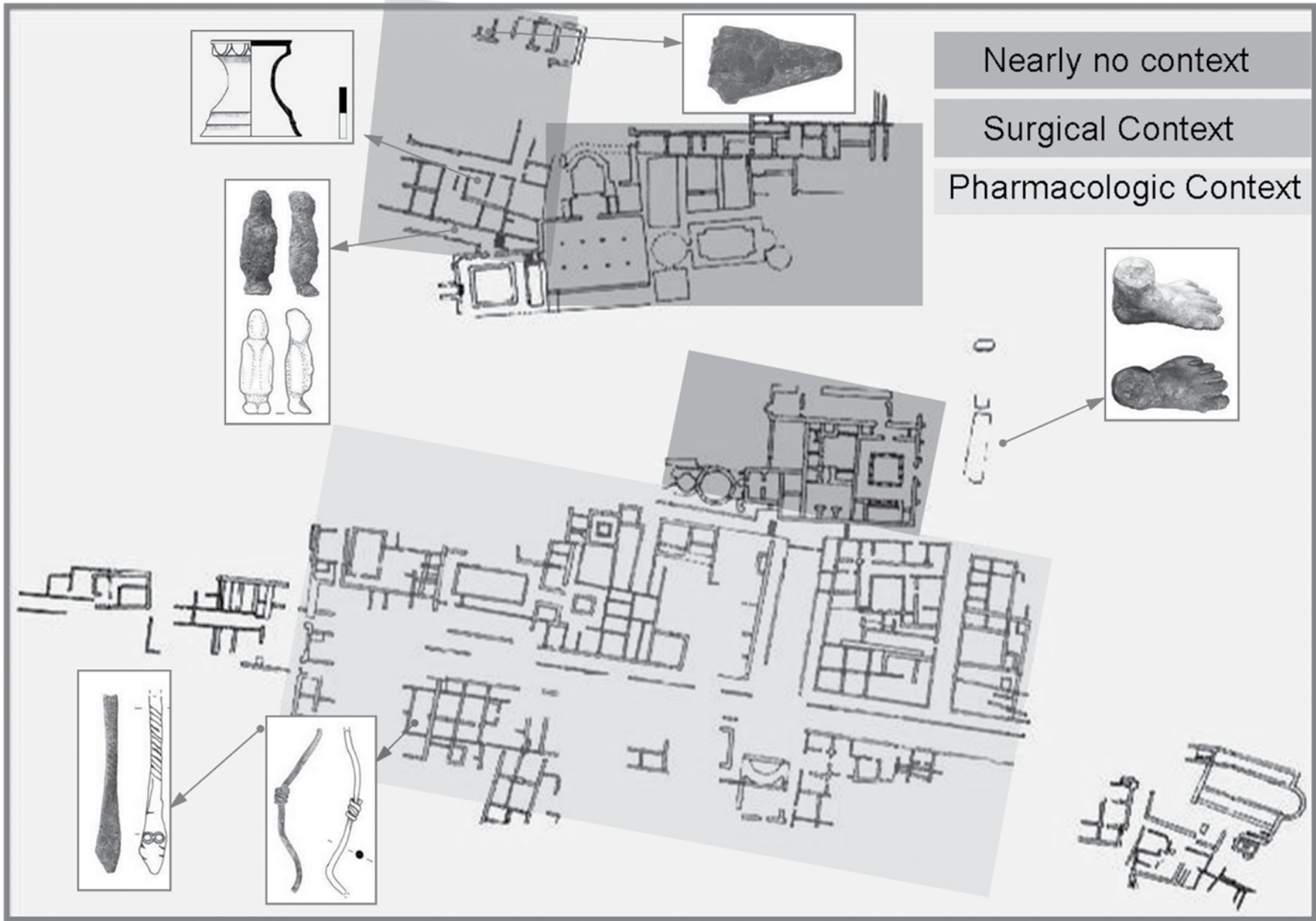


Figure 15.10. Some diagnostic finds and their findspots in Allianoi (by D. Baykan, 2011).

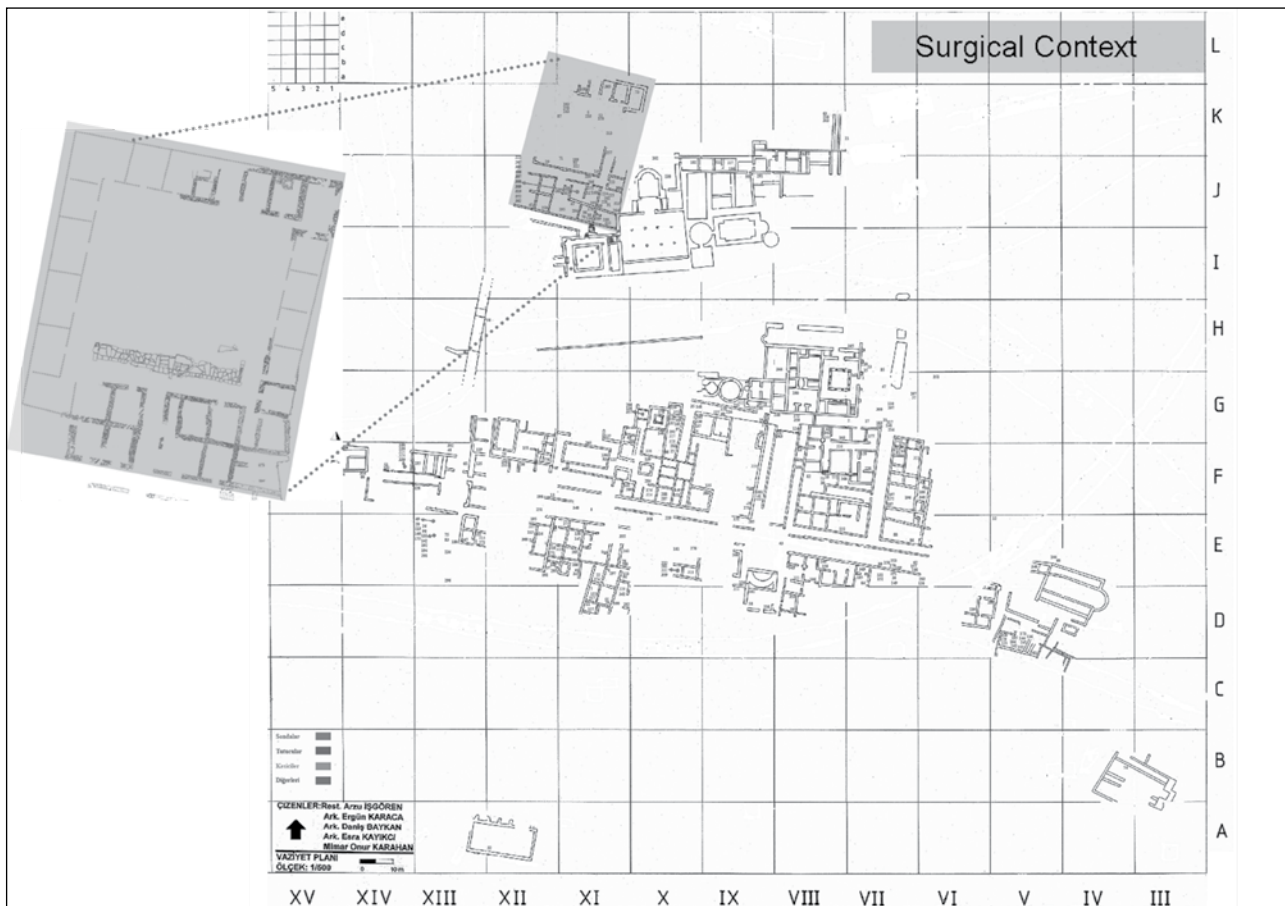


Figure 15.11. Plan of the hospital or *valetudinarium* in Allianoi (by D. Baykan, 2011).

opinion, neither an *amphitheatrum*,¹² which comes to mind for gladiator treatment, nor an Asclepeion is appropriate to perform surgery on gladiators. In the long term excavations in Asclepeion no important surgical instrument context was found. Asclepieions are not appropriate places for life-threatening medical treatment in terms of predominantly religious and mystic medicine perception. I think the place where Galen treated gladiators in AD 157–161/162¹³ was Allianoi, according to its context and dating: most probably it was a yard type structure in the northern side of İlya(s) stream, between the bridge and the north hot spring. Although some part of the building belongs to a later period, in the anthropological examination of the skeletons found in Allianoi and nearby surroundings, the discovery of¹⁴ defense breaks in the ribs and fingers supports this idea. The tombs called as Kocakoru¹⁵ and Maymun Sekizi¹⁶ were found in the salvage excavations outside the settlement and evidence some relations to the

gladiators whose treatments were probably unsuccessful.¹⁷ The deaths during the period of gladiator physicians before Galen and Galen's successful treatments surprisingly correspond to the date of the *necropolis*. My theory, which also suggests other evidence will be found in further researches, explains the value of Allianoi or (at least) its function in the second century AD.

In my opinion, the numerous medical instruments found in Allianoi (fig. 15.11) and the data I have obtained are undeniable proof that Galen, whose precise location in Pergamum is still unknown, performed surgical interventions in Allianoi.

¹² Radt 2002, pp. 45–46.

¹³ Carter 2004, pp. 42–43.

¹⁴ The anthropological data is obtained from the unpublished paper of Professor Yılmaz Selim Erdal, entitled 'Health problems on Allianoi human skeleton remains' which was presented at the 28th International Symposium of Archaeological Excavations, Surveys and Archaeometric Research undertaken in Turkey, on 30 May 2006, in Çanakkale, Turkey.

¹⁵ Yaraş 2004, pp. 227–35.

¹⁶ Yaraş 2002, pp. 469–70.

¹⁷ Yaraş 2002, pp. 469–70, fig. 7.

Surgical Instruments from the *Necropolis* of Juliopolis in Bithynia (Northwestern Central Turkey)

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Abstract: The ancient city of Juliopolis in Bithynia lies today in Gülşehri, Çayırhan village, in the Nallıhan district of Ankara. In 2009 and 2010 rescue excavations were conducted to stop many years of destruction by illicit activities in the *necropolis*. After two years 209 burials were excavated. Some of the burials had been destroyed by looters, others had been robbed in ancient times, but the majority of the 209 burials was intact and opened by us. We have identified four different types of burials in the *necropolis*: the chamber tomb built on limestone; the cist grave cut into limestone; the *sarcophagus* burial; and the simple grave covered with a stone lid. Finds from the burials like inscriptions and coins indicate that the *necropolis* was used between the fourth century BC. and the fourth century AD. Finds from the burials are related not only to religious, economic and cultural structures but also to the profession of the owner, for example, medical instruments. Medical and pharmaceutical goods have been found in 12 graves, suggesting that these were the graves of doctors or pharmacists. The finds from these 12 graves were made of silver, bronze, iron, bone and glass and they include drug mixing trays, *specilla*, needle-drills, measuring spoons, ear spoons, spoon probes, probe spatulas, chisels, knives and mixing bars. Although two of the burials had been robbed, 10 graves had not been looted and the finds were *in situ*. Ten physicians' burials have been excavated that had not been destroyed by smugglers. The coins on the mouths of the deceased, the medical instruments and the other finds help us to date the tombs. These untouched physicians' tombs at Juliopolis provide important evidence on the ancient medical history of Bithynia and Galatia.

Keywords: Bronze implements, grave, surgery, pharmacy tools, Juliopolis, Bithynia, northwestern central Turkey.

Özet – Iuliopolis Nekropolünden Cerrahi Aletler: Bithynia'daki Iuliopolis antik kenti bugün Ankara'nın Nallıhan ilçesi, Çayırhan Köyü'ndeki Gülşehri'nde bulunmaktadır. 2009 ve 2010 yıllarında, nekropol alanında yasadışı faaliyetlerle uzun yıllar süren yıkımı durdurmak için kurtarma kazıları yapılmıştır. İki yıl sonra 209 mezar kazılmıştır. Mezarların bir kısmı yağmalayıcılar tarafından yok edilse de bazıları daha Antik Çağ'da soyulmuş idi. Ancak kazısı yapılan 209 mezarın çoğunluğu sağlamdı ve tarafımızdan ilk kez açılmıştır. Nekropol alanında dört farklı mezar türü tespit edilmiştir: Kireçtaşından yapılmış oda mezar; kireçtaşından taş sandık mezar; lahit mezar; ve taş kapakla örtülü basit mezar. Yazıtlar ve sikke buluntuları gibi mezarlardan elde edilen bulgular, nekropolün İ.Ö. 4. yy.'dan İ.S. 4. yy.'a kadar kullanıldığını göstermektedir. Mezarlardan elde edilen bulgular yalnızca dinsel, ekonomik ve kültürel yapısı ile ilgili değil, aynı zamanda tıbbi aletler gibi mezar sahibinin mesleği ile de ilgilidir. 12 mezarda tıbbî ve farmakolojik buluntular ele geçmiş ve bunların hekimlerin veya eczacıların mezarları oldukları düşünülmektedir. Bu 12 mezarın buluntuları gümüş, bronz, demir, kemik ve candan yapılmıştır ve ilaç karıştırma tepsileri, *specilla*, iğneler, ölçü kaşıkları, kulak kaşıkları, kaşık sondaları, sonda spatulalar, keskiçler, bıçaklar ve karıştırma levhalarıdır. İki mezarın soyulmuş olmasına rağmen, 10 mezar yağmalanmamış ve buluntular *in situ* olarak ele geçmiştir. Kaçakçılar tarafından tahrip edilmemiş 10 hekimin mezarı kazılmıştır. Ölen kişinin ağızındaki sikkeler, tıp aletleri ve diğer buluntular mezarları tarihlendirmemize yardımcı olmaktadır. Iuliopolis'deki

açılmamış hekim mezarları, Bithynia ve Galatia Bölgeleri'nin antik tıp tarihi hakkında önemli deliller sunar.

Anahtar Kelimeler: Bronz aletler, mezar, cerrahi, ecza araç-gereci, Iuliopolis, Bithynia, Kuzeybatı Orta Anadolu.

Surgical operations in antiquity are controversial but ancient sources and archaeological finds from physicians' graves demonstrates how humans healed or operated on each other in antiquity.

Ancient physicians' graves were repeatedly destroyed or sold in pieces by the treasure hunters in Anatolia. We know that many surgical tools from Anatolia went to private collections or museums outside Turkey. It is very rare to find physicians' graves with surgical tools in their original context. Another important aspect of this graves is their location of Juliopolis in Bithynia, which means they differ from western and southern Anatolian physicians' graves.

The tradition of burying physicians with their tools in the Roman Empire, which lasted from the first to the fourth century AD, allow us to learn about these ancient instruments. The *necropolis* of Juliopolis is located 5 km south of Çayırhan Town, Nallıhan District of Ankara. The ancient city is now under the waters of Sarıyar Dam Lake (Hasan Polatkan Hydroelectric Centre). 276 graves were excavated here between 2009 and 2011, and we established six different grave types. 50 of them were as rock-cut tombs in room shape; 161 coffin shaped rock-cut graves; 54 basic graves dug in the earth; seven *sarcophagi*, cremation and one a triangle-roofed coffin grave. There were also two unfinished rock-cut graves.

One of the most important phenomena of the Juliopolis graves is that almost all the graves have coins. This allows us to date all finds to in an exact period of time. Another interesting fact is the relationship of other finds with the surgical tools. Many coins showing Asclepius from the graves show that there must have been the cult of Asclepius in Juliopolis. A silver ring with a red jasper gem showing Asclepius and a *ligula* found in grave 120 (pl. 16.9) is a further evidence for the cult of Asclepius in Juliopolis.

Many finds from the *necropolis* indicate the job of the grave inhabitants. Surgical tools refer to physicians, strigilias to sportsmen or teenagers, ink-pots to men of letters Physician graves make up the largest percentage of the 276 graves already excavated. These 16 graves include both surgery and pharmacy tools. There were also scissors found in certain graves, but some scholars suggest that these were used in hairdressing instead of medical care.¹

It is not certain whether medicine/ointment cases found in three different graves (figs. 16.7 and 16.29) belong to a healer or the patient who used them. We are not sure

that the contents, pins with heads and holes made of bone, bronze and silver, were used as surgery tools. They were found next to the head of the grave inhabitant so it is more probable to think of them as pins. Therefore pins found far from the dead person's head may in all probability indicate surgery tool usage.

The examination of the typology Juliopolis physicians' graves shows that these graves are rock-cut tombs with one or room for two coffins. Some of them are in good and some in fair condition. It is interesting to see lime used covering some physicians' graves. This would indicate that the deceased had a communicable disease. We understand that physicians were either buried alone in individual graves or with their wives in double occupancy graves. This prompts the thought that physicians were not members of large families; probably they were foreign settlers because of the medical industry in Juliopolis. We know that physicians who had studied in large cities would often settle in other cities to earn their livelihoods in antiquity.² This reflects the economic importance and movement of Juliopolis. Another important feature of the Juliopolis graves is that they show the richness of surgeons' graves compared to those of physicians or healers.

The medical objects found from Juliopolis include: ear catheters, catheters with spatula ends, scoop catheters, knives, drills, forceps, scissors, medicine-ointment cases and medicine-preparing cups. Below you may find the surgical tools catalog by grave numbers. These tools can be dated to between the first and third century AD with the help of numismatic evidence.

Scoop catheters (*Cyathisscomele*)

Cyathisscomele's were found in the Graves 71 (pl. 16.2) and 139 (pl. 16.14) used as both catheters and scoops, to measure, mix and apply substances. These would be found in cosmetic sets as well as medical ones.³ Similar examples can be seen in the Museum of Alanya, Museum of Anatolian Civilisations,⁴ Museum of Antalya⁵ collections and Pompeii.⁶

Catheter with spatula end (*Spatomel*)

Grave 82 yielded a spatome with a catheter on one side and a spatula on the other end (pl. 16.3). *Spatomel* is a

¹ Jackson 1995, p. 49.

² Jackson 1995, p. 53.

³ Uzel 2000, pp. 59–60.

⁴ Uzel 2000, p. 184.

⁵ Uzel 2000, p. 192.

⁶ Bliquez 1994, pp. 145–54.



Figure 16.1. General view of the surgical instruments from Juliopolis (by M. Arslan and A.R. Erdoğan, 2011).

pharmaceutical tool rather than medical. The spatula side was used to mix ingredients and the other side was used to spread medicine or ointments on to the incurred surface.⁷ Milne relates that ancient writers used the *spatomel* as a mixing tool.⁸ Similar examples can be found in the Collection of Bingen,⁹ the Museum of Gaziantep,¹⁰ Archaeological Museums of Istanbul,¹¹ Museum of Ephesus,¹² Yalav Collection¹³ and Pompeii.¹⁴

Ear catheter (*Oricularim specillum*)

Oricularim specillum tools found from Grave 71 (3) (pl. 16.2) and Grave 139 (25) (pl. 16.14) were used to remove foreign bodies from the ear, to examine the inside of the ear and sometimes to apply medicines and ointments for healing. Similar examples found in Anatolia are in the Museum of Ephesus, the Museum of Anatolian Civilisations,¹⁵ and the Yalav Collection.¹⁶

Situlae have two types of blade edges, wide and narrow. Wide-edged cutters were found in Grave 110 (6) (pl. 16.4), Grave 112 (7) (pl. 16.5), Grave 174 (32) (pl. 16.16) and Grave 187 (34) (pl. 16.18). Narrow-edged cutters were found in Grave 124 (20 and 21) (pl. 16.11), Grave 138 (23)

(pl. 16.13) and Grave 257 (37 and 38) (pl. 16.22). These tools were probably used in bone disease operations.¹⁷ It is rare to find wide edged *stilus*'s made of bronze and iron. Narrow edged *situlae* were much more popular in usage. There is a good example of a narrow-edged *situlae* in the Archaeological Museum of Afyonkarahisar.¹⁸

Others

Drills were found in Grave 82 (5) (pl. 16.3), Grave 119 (13) (pl. 16.8), Grave 120 (15 and 14) (pl. 16.9) and Grave 201 (36) (pl. 16.20). Surgical pins were often made of iron so it is very difficult to find them in excavations. Surviving pins in various collections are made of bronze.¹⁹ It was understood that pins were also surgical tools which could be found in surgical tool sets. Some drill forms are very similar to those pins used by Roman women as hairpins. There were also drills developed for stitching up the tissue as well as bandage-fixing drills.²⁰ We may find related objects in the Archaeological Museums of Istanbul²¹ and the Yalav Collection.²²

Knives were found within the Grave 124 (19) (pl. 16.11) and Grave 139 (24 and 26) (pl. 16.14). In the ancient Greek and Roman periods, knives were made of steel and their hafts made of bronze. It is also possible to find whole knives made of steel or bronze, although rarely. The

⁷ Uzel 2000, pp. 57–58.

⁸ Milne 1907, pp. 58–61.

⁹ Uzel 2000, pp. 27–28.

¹⁰ Uzel 2000, p. 234.

¹¹ Uzel 2000, p. 239.

¹² Uzel 2000, pp. 215–16.

¹³ Yalav 2008, p. 50.

¹⁴ Bliquez 1994, pp. 135–40.

¹⁵ Uzel 2000, pp. 60–63.

¹⁶ Yalav 2008, p. 69.

¹⁷ Uzel 2000, pp. 111–13.

¹⁸ Uzel 2000, p. 176.

¹⁹ Yalav 2008, p. 82.

²⁰ Uzel 2000, p. 68.

²¹ Uzel 2000, p. 249.

²² Yalav 2008, pp. 215, 253 and 254.

knife haft would be circular, rectangular, hexagonal or trapezoidal in form. There must be a slot to put the steel knife in it. The Bingen Collection, finds from Colophon,²³ grave finds from Ephesus²⁴ and the Pompeii Collection²⁵ have various examples of knives in good condition.

Scissors, which were found in Grave 130 (22) (pl. 16.12), Grave 139 (pl. 16.14) and Grave 180 (pl. 16.17), are very usual finds and well known from other collections. Iron scissors found in Grave 130 (pl. 16.12) and 180 (pl. 16.17) has no additional accompanying equipment, so their use in surgery is not certain. The iron scissors with bronze hafts found within a surgery tool kit from Grave 139 (pl. 16.14) must be a surgery tool. Similar examples exist in Pompeii,²⁶ a grave context of a physician in Kepsut²⁷ and Archaeological Museums of Istanbul.²⁸ Different types of scissors with several functions, made of bronze or iron, are also found in residential areas. Celsus refers to this tool twice: "They get to risk as using the scissors to cut necrosis to heal injuries or diseases". It is not accurate if scissors were used as a surgical tool. They were used to cut clothes and bandages and it is possible to refer the usage as a veterinary tool.²⁹

Retractors are described as both sharp and blunt hooks. Blunt retractors were used to dissect and dismiss blood vessels like aneurysm needles today in modern medicine. Sharp ones were used in the excision of small pieces of tissues and to control contusion.³⁰ Similar objects exist in a grave in Adana,³¹ in Pompeii,³² in the Bingen Collection, the Archaeological Museums of Istanbul and the tools published by Ernst Künzl.³³

There is only one sample of forceps in Juliopolis, from Grave 139 (pl. 16.14). These were used in surgical operations and epilation. There are several similar objects from Pompeii,³⁴ from a grave of a physician in Cerrahpaşa,³⁵ in the Museum of Anatolian Civilisations, in the Museum of Antalya and in Ernst Gurtl Collection.³⁶

There are three medicine or ointment cases from the Juliopolis *necropolis*: from graves 118 (pl. 16.7), Grave 122 (pl. 16.10) and Grave 189 (pl. 16.19). Ointment cases were much smaller than medicine cases and have no inner compartments or divisions. The cases are all of cylindrical shape with a lid in the same form. There is concentric scratching decoration on the lid, surface and base. There

are similar examples in Pompeii,³⁷ the Yalav Collection,³⁸ and the Archaeological Museum of Afyonkarahisar.³⁹

There were dispensing trays found in Grave 71 (2) (pl. 16.2) and Grave 139 (30) (pl. 16.14). They are produced from different stones: the tray from grave 139 (pl. 16.14) is made of emery stone and was found with a surgical kit, while the tray from Grave 71 (pl. 16.2) was found with scoop catheters and is made of local, soft schist. These dispensing trays were used to crush and mix pomades or cosmetics. Similar ones exist in Herculaneum, the Museum of Ephesus, in Colophon, the Archaeological Museum of Afyonkarahisar, the Museum of Bolu,⁴⁰ and the Yalav Collection.⁴¹

One may find in the catalog the dates of coins within the graves. It is clear that the surgical tools found in Juliopolis graves will be an important reference for dating surgical tools in Anatolia. It is possible to find more physicians' graves in the *necropolis* in further excavations. Hopefully, that will produce much more data and help to construct an exact chronology for Anatolian surgical tools.

²³ Uzel 2000, pp. 79–81.

²⁴ Baykan 2010, pp. 2–4.

²⁵ Bliquez 1994, pp. 113–16.

²⁶ Bliquez 1994, p. 122.

²⁷ Baykan 2010, pp. 3–4.

²⁸ Uzel 2000, pp. 244–59.

²⁹ Bliquez 1994, p. 171.

³⁰ Uzel 2000, p. 75.

³¹ Baykan 1994, p. 4.

³² Bliquez, 1994, pp. 124–28.

³³ Uzel 2000, pp. 199, 242 and 269.

³⁴ Bliquez 1994, pp. 172–78.

³⁵ Baykan 2010, p. 3.

³⁶ Uzel 2000, pp. 186, 194 and 235.

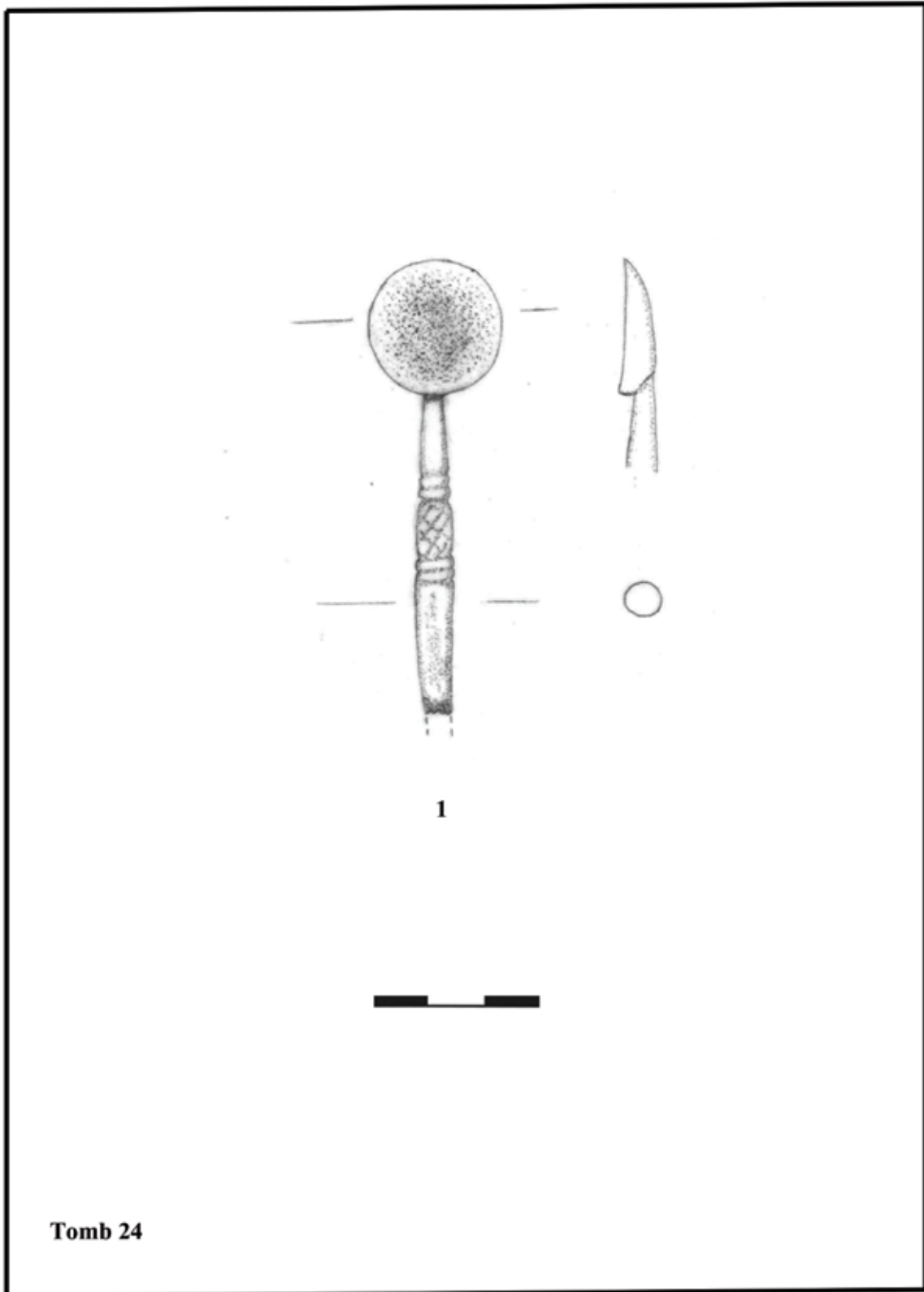
³⁷ Bliquez 1994, pp. 193–96.

³⁸ Yalav 2008, p. 227.

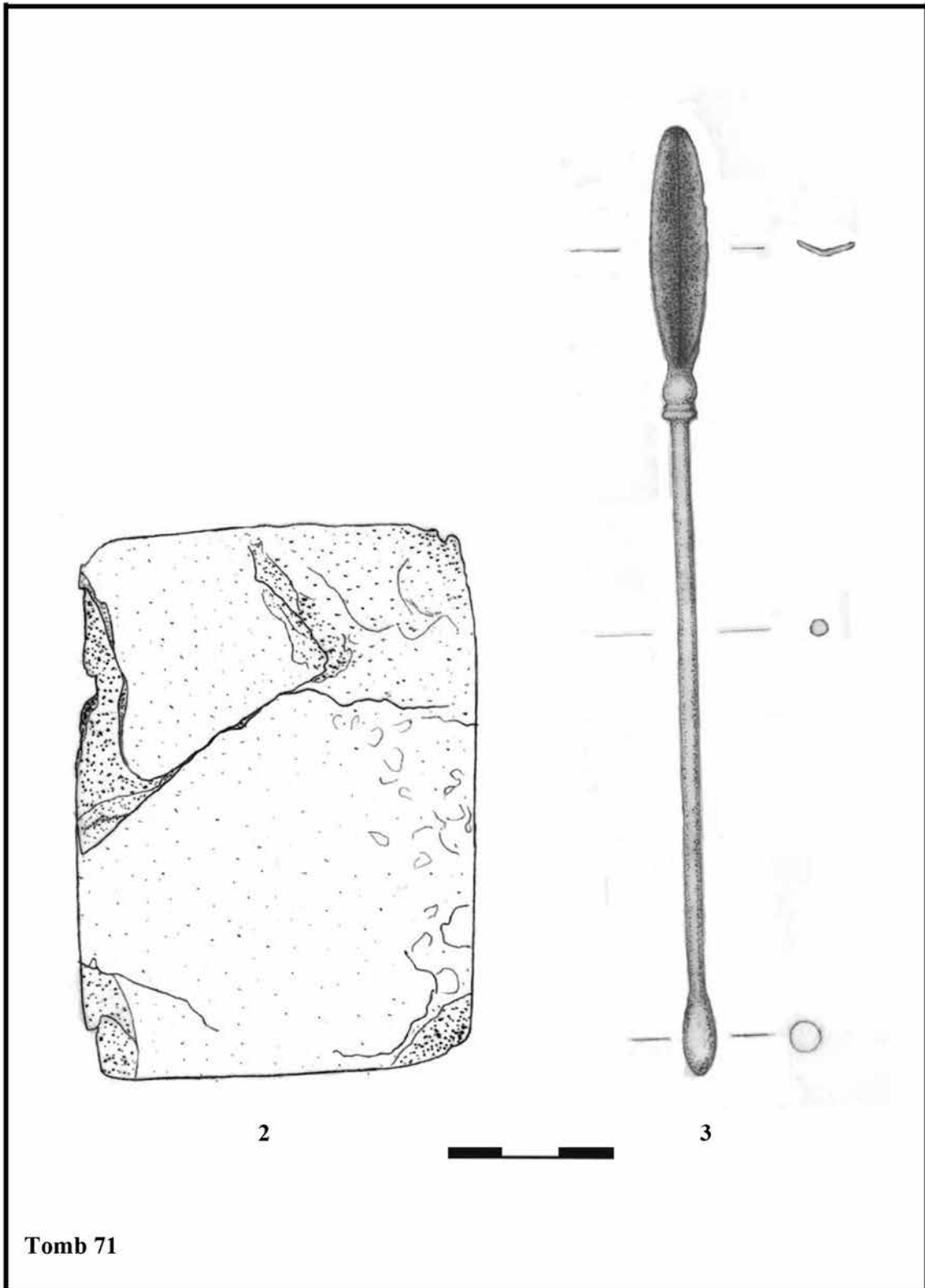
³⁹ Uzel 2000, p. 142.

⁴⁰ Uzel 2000, pp. 141 and 142.

⁴¹ Yalav 2008, p. 227.

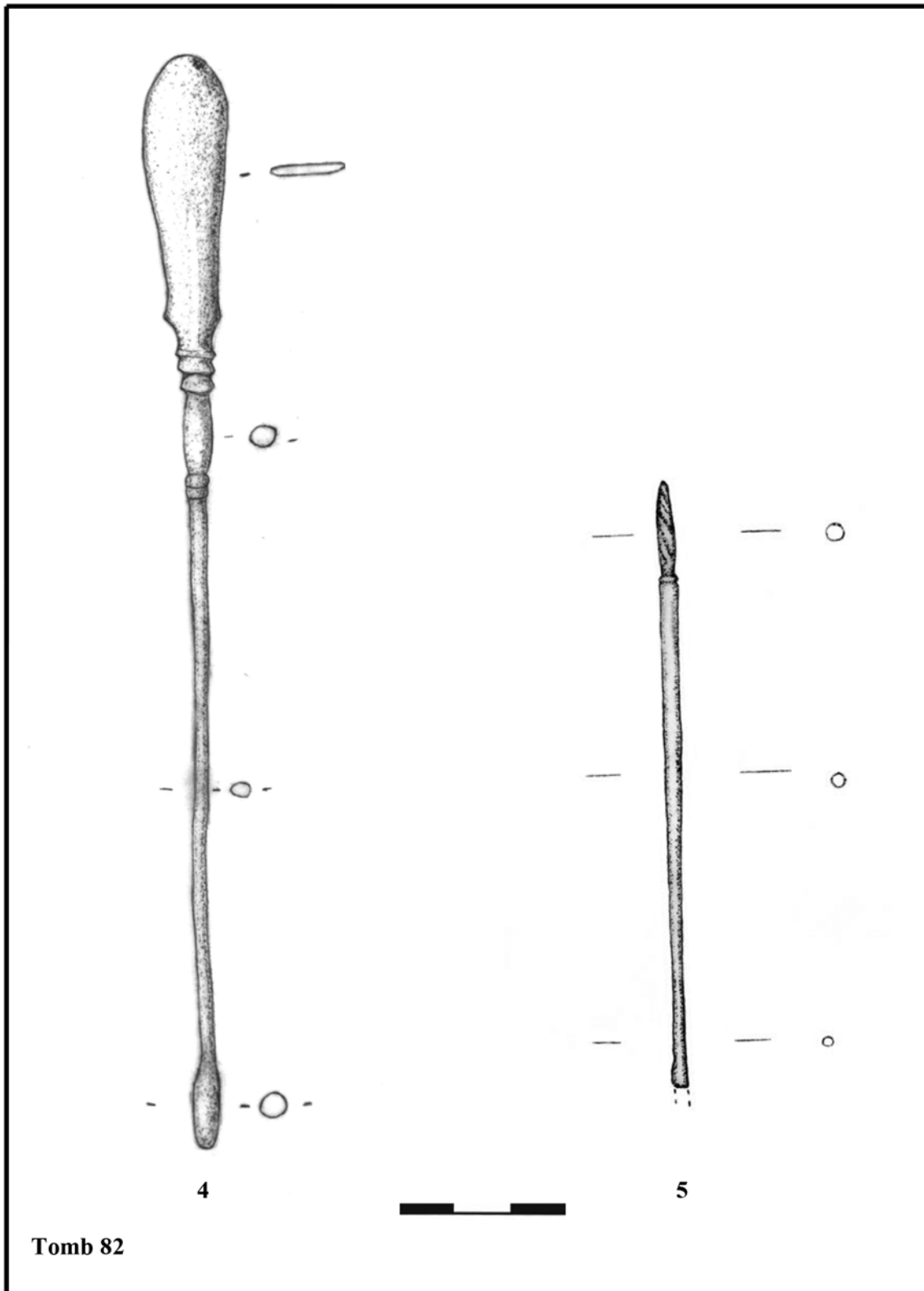


Pl. 16.1. A surgical instrument from the *necropolis* of Juliopolis (by M. Arslan and A.R. Erdoğan, 2011).

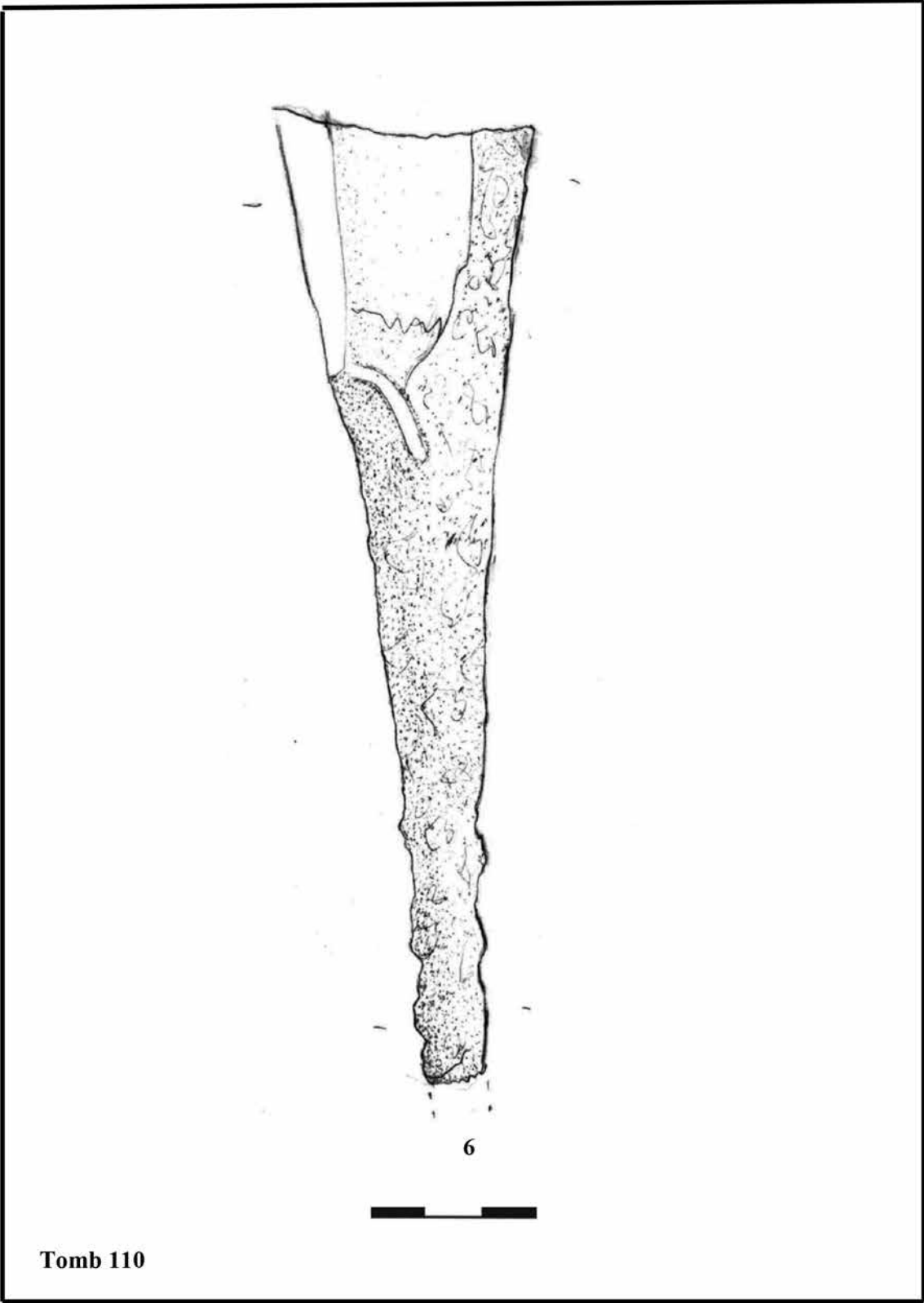


Tomb 71

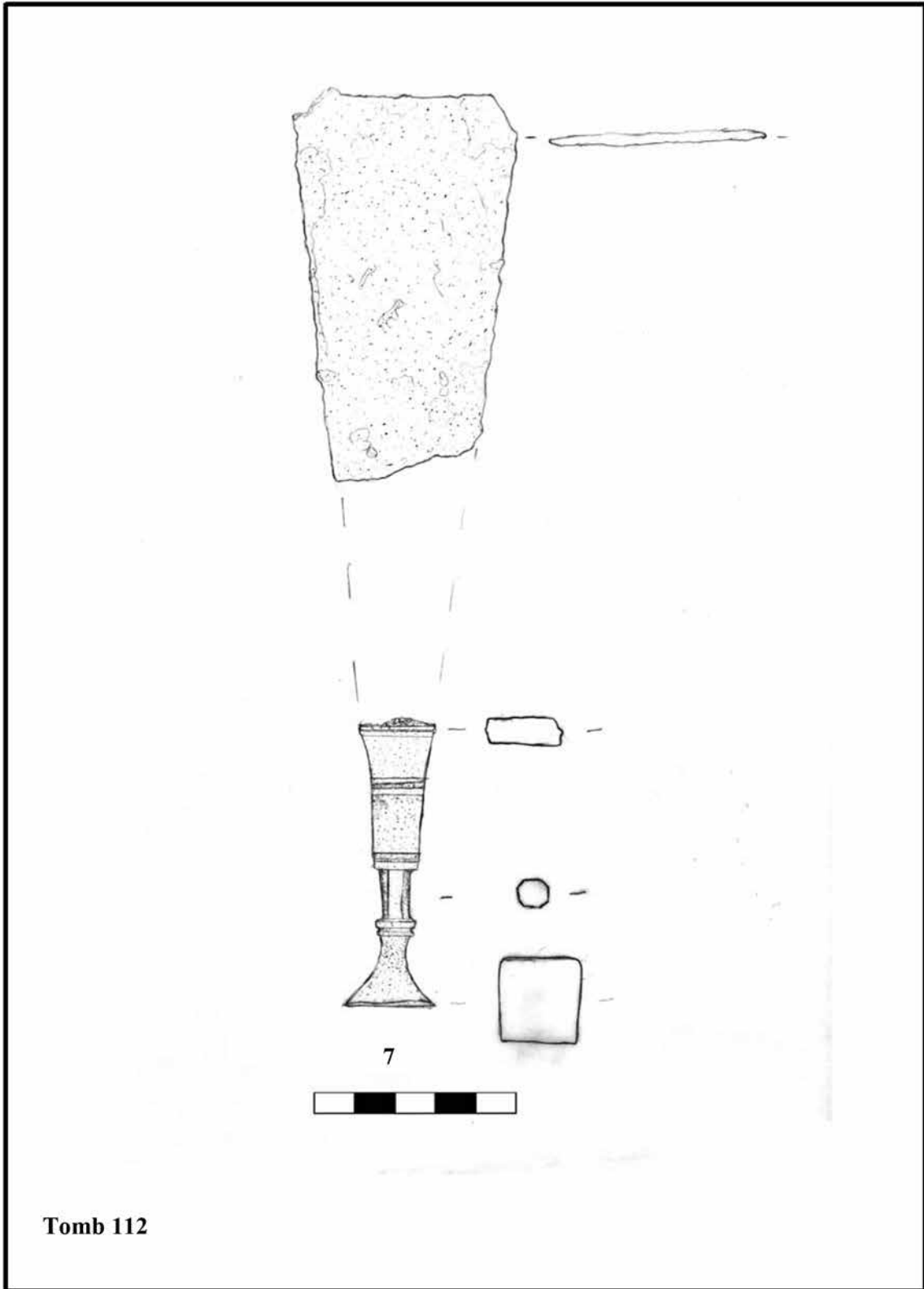
Pl. 16.2. Tools for *oricularim specillum* with a dispensing tray (by M. Arslan and A.R. Erdoğan, 2011).



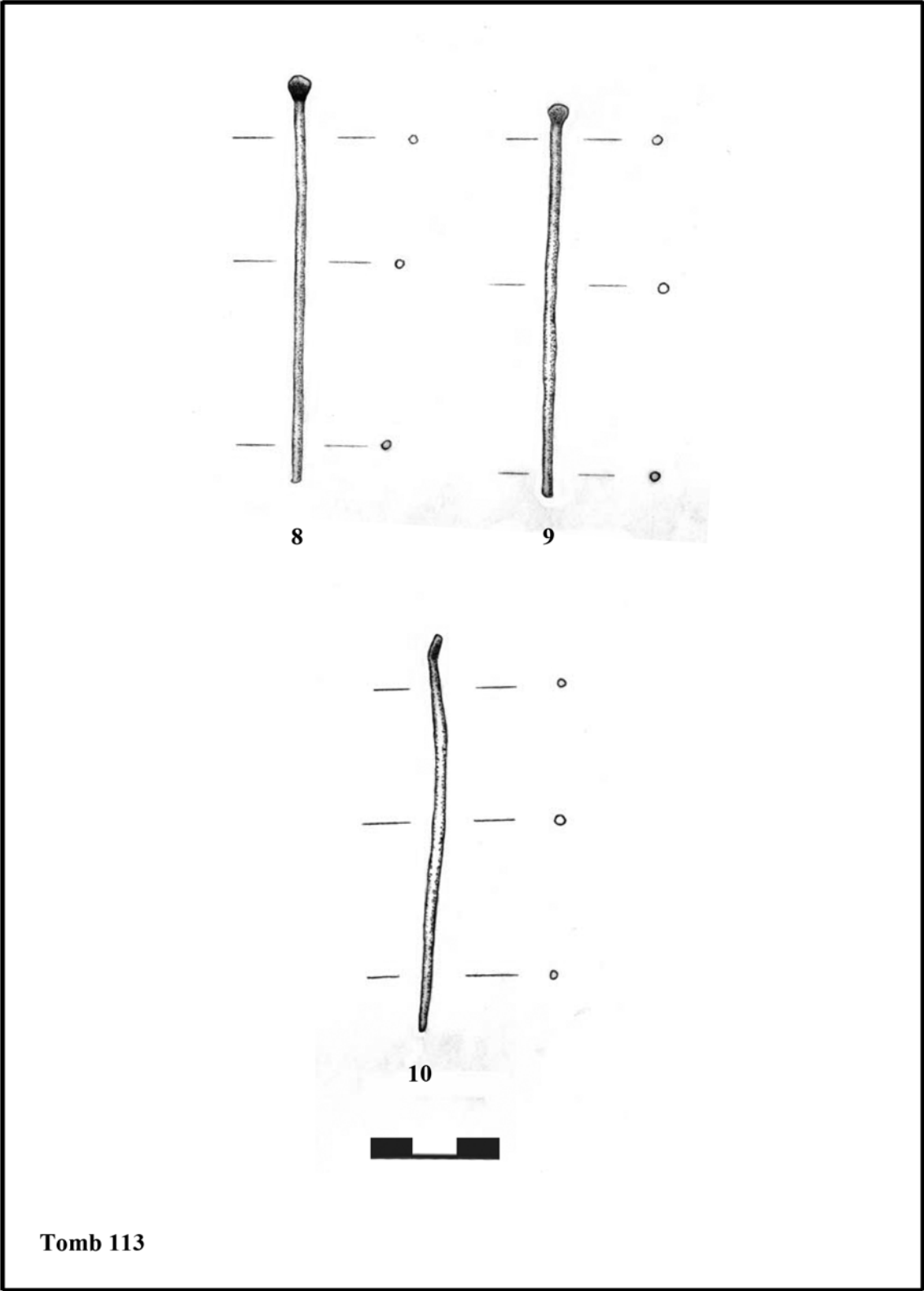
Pl. 16.3. A spatula and a drill (by M. Arslan and A.R. Erdoğan, 2011).



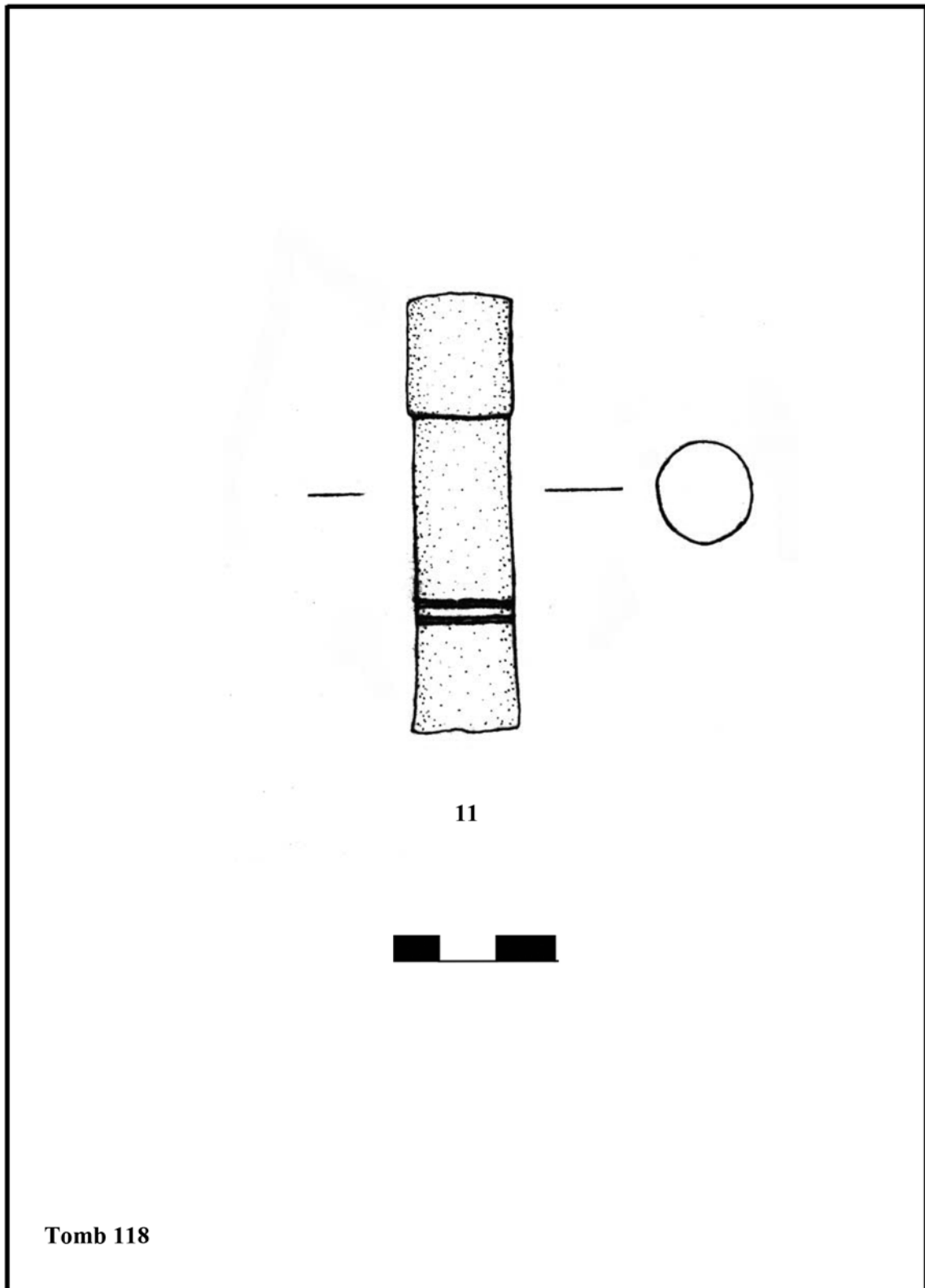
Pl. 16.4. A wide edged cutter (by M. Arslan and A.R. Erdoğan, 2011).



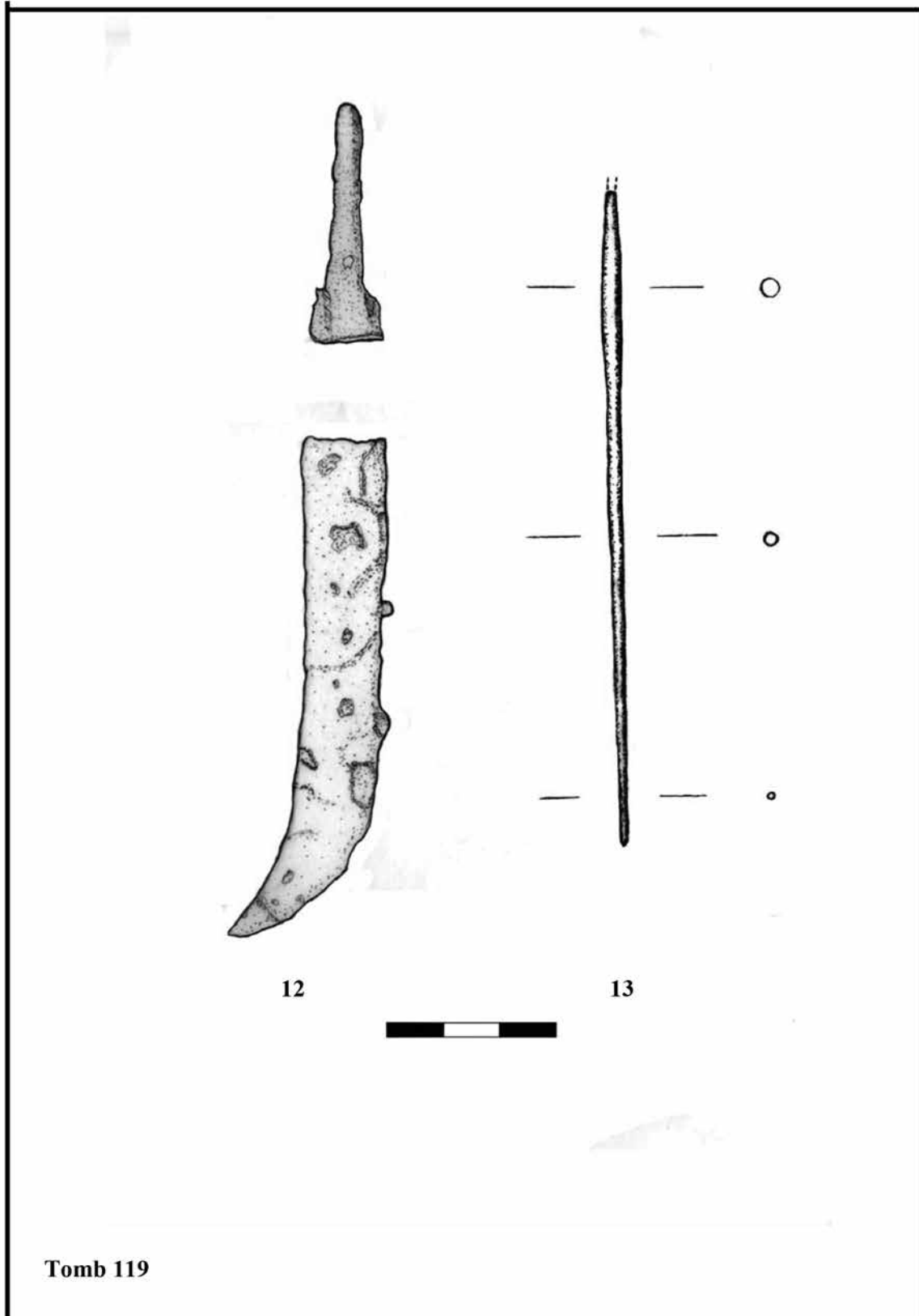
Pl. 16.5. A wide edged cutter (by M. Arslan and A.R. Erdoğan, 2011).



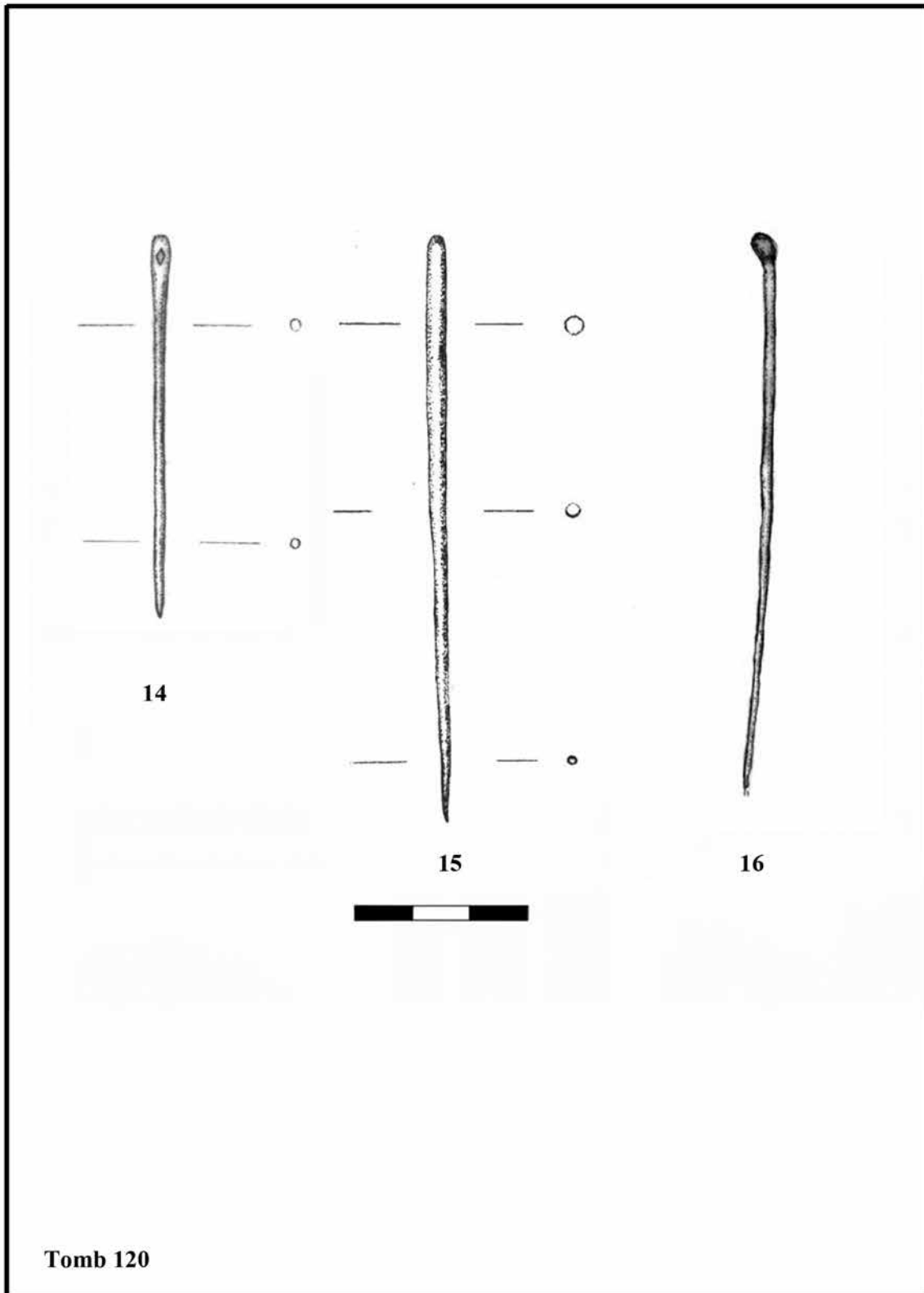
Pl. 16.6. Three implements from the *necropolis* of Juliopolis (by M. Arslan and A.R. Erdoğan, 2011).



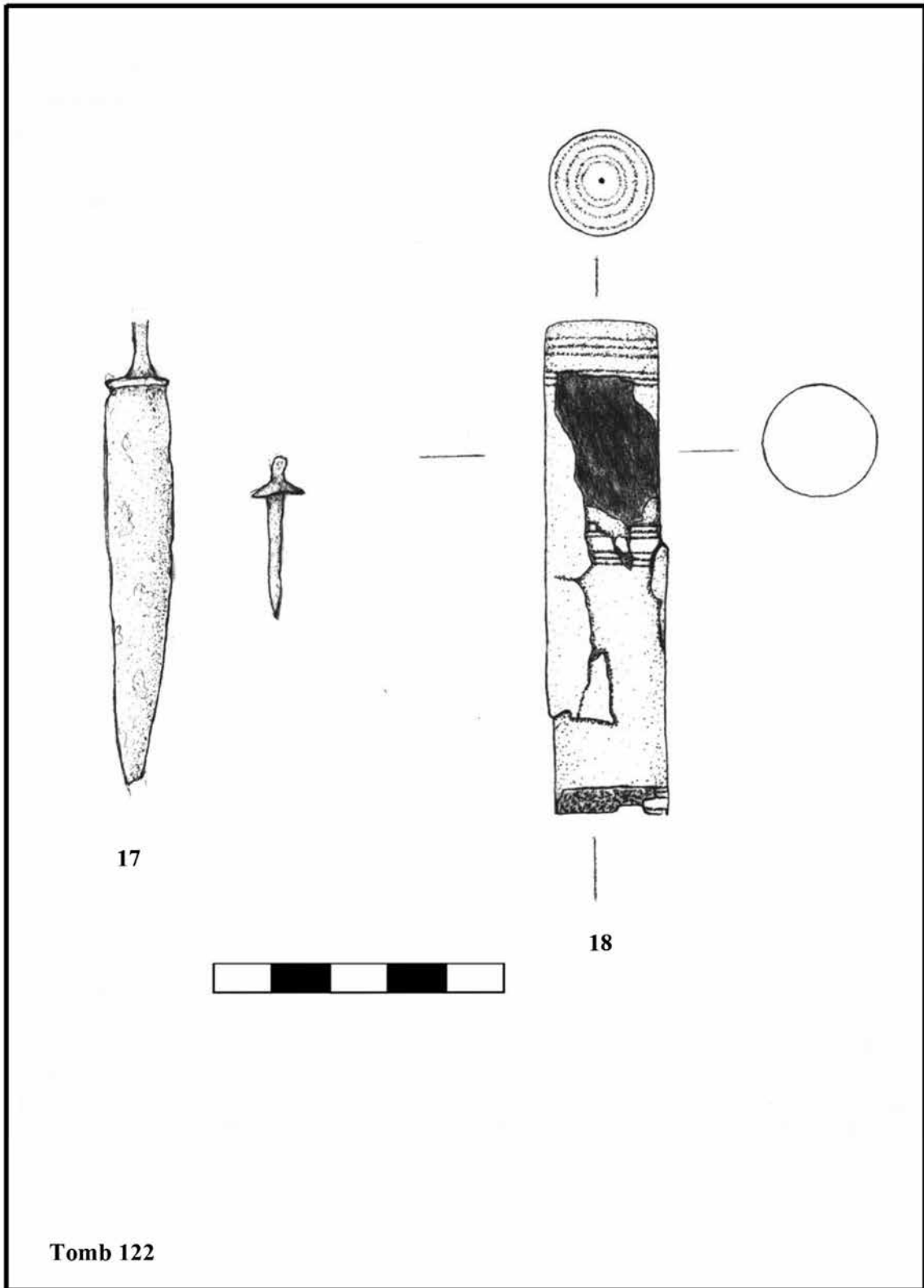
Pl. 16.7. A medicine-ointment case (by M. Arslan and A.R. Erdoğan, 2011).



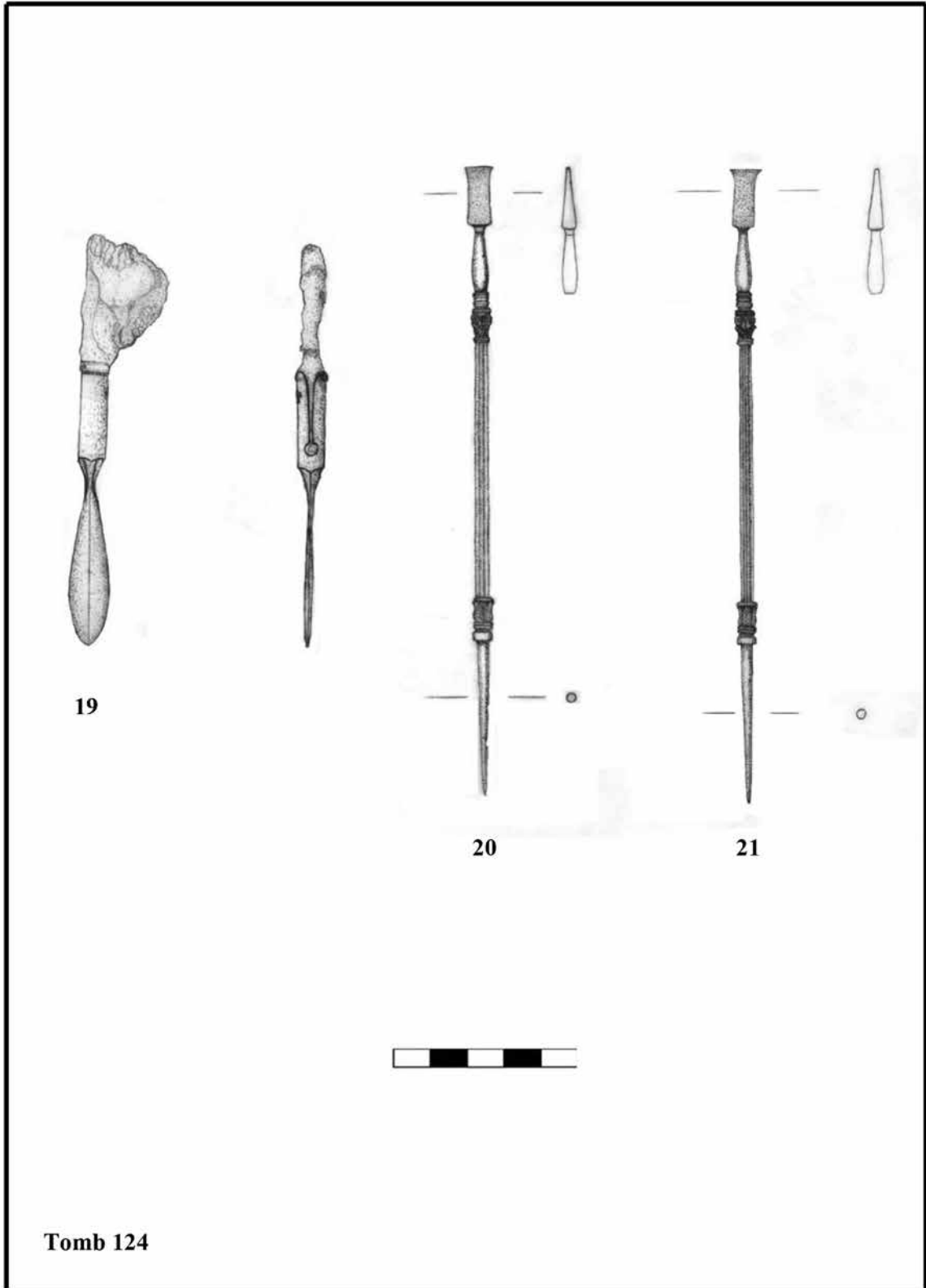
Pl. 16.8. A drill found in the Grave 119 (by M. Arslan and A.R. Erdoğan, 2011).



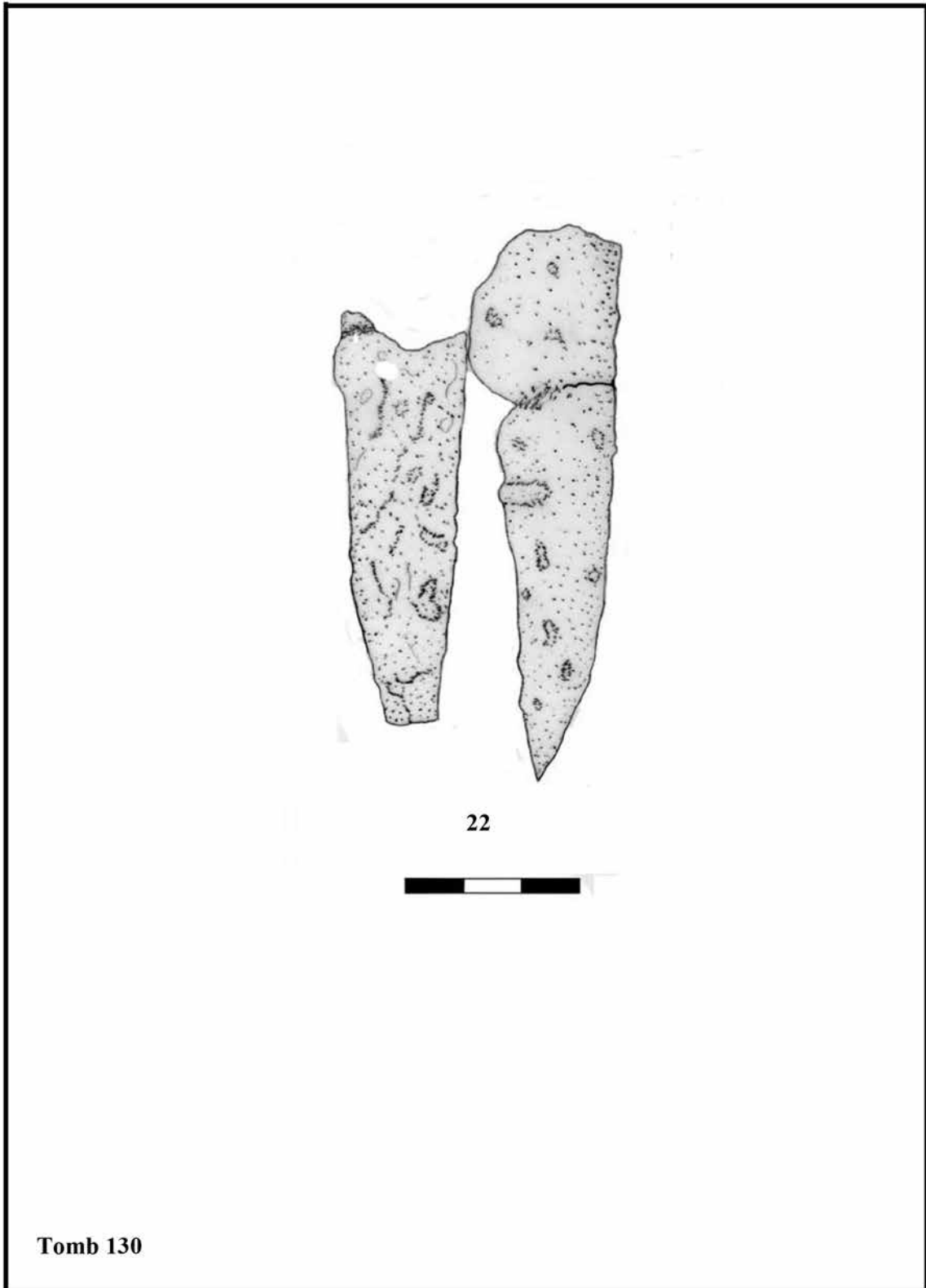
Pl. 16.9. A ligula and two drills found in the Grave 120 (by M. Arslan and A.R. Erdoğan, 2011).



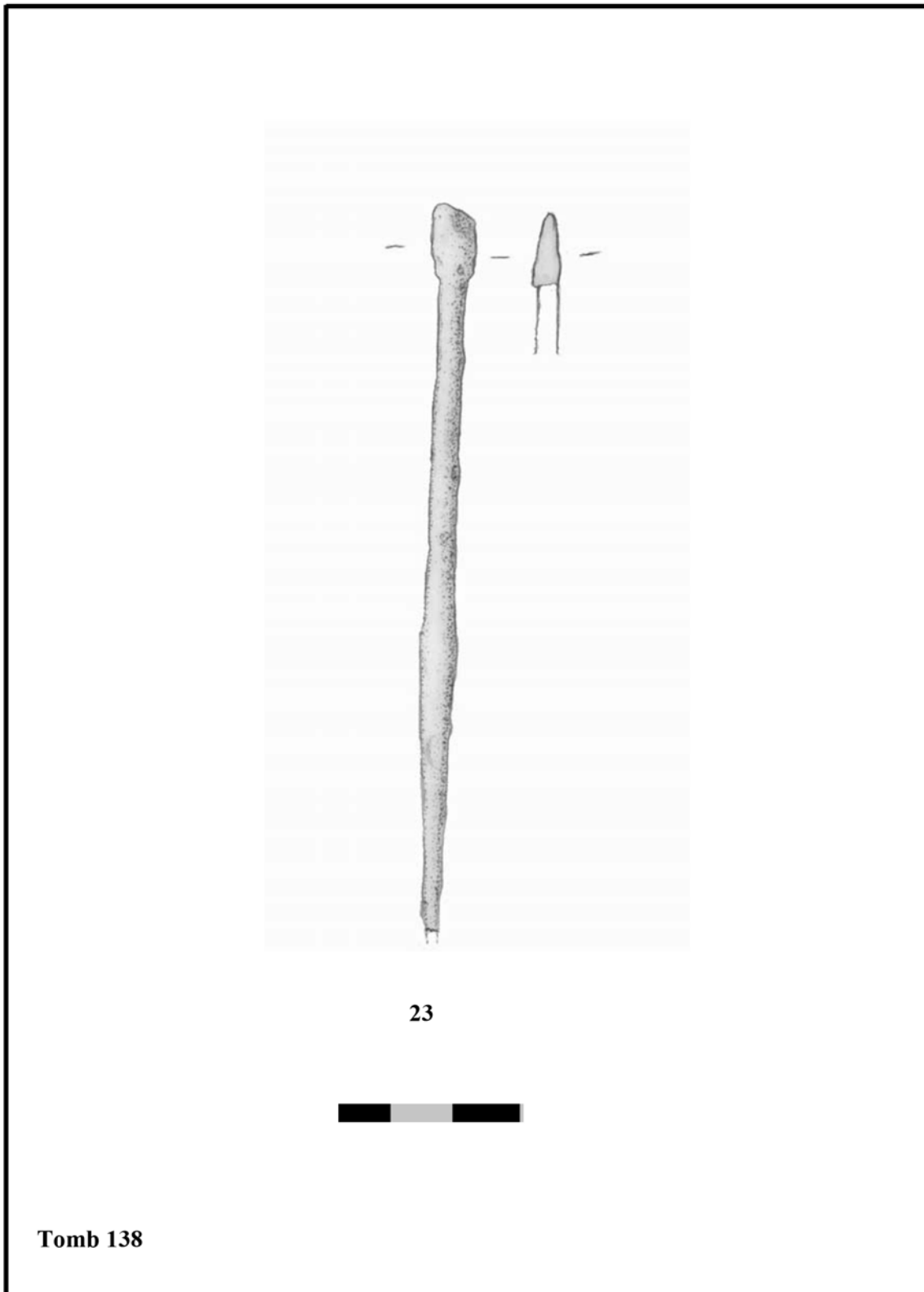
Pl. 16.10. Two medicine-ointment cases from Grave 122 (by M. Arslan and A.R. Erdoğan, 2011).



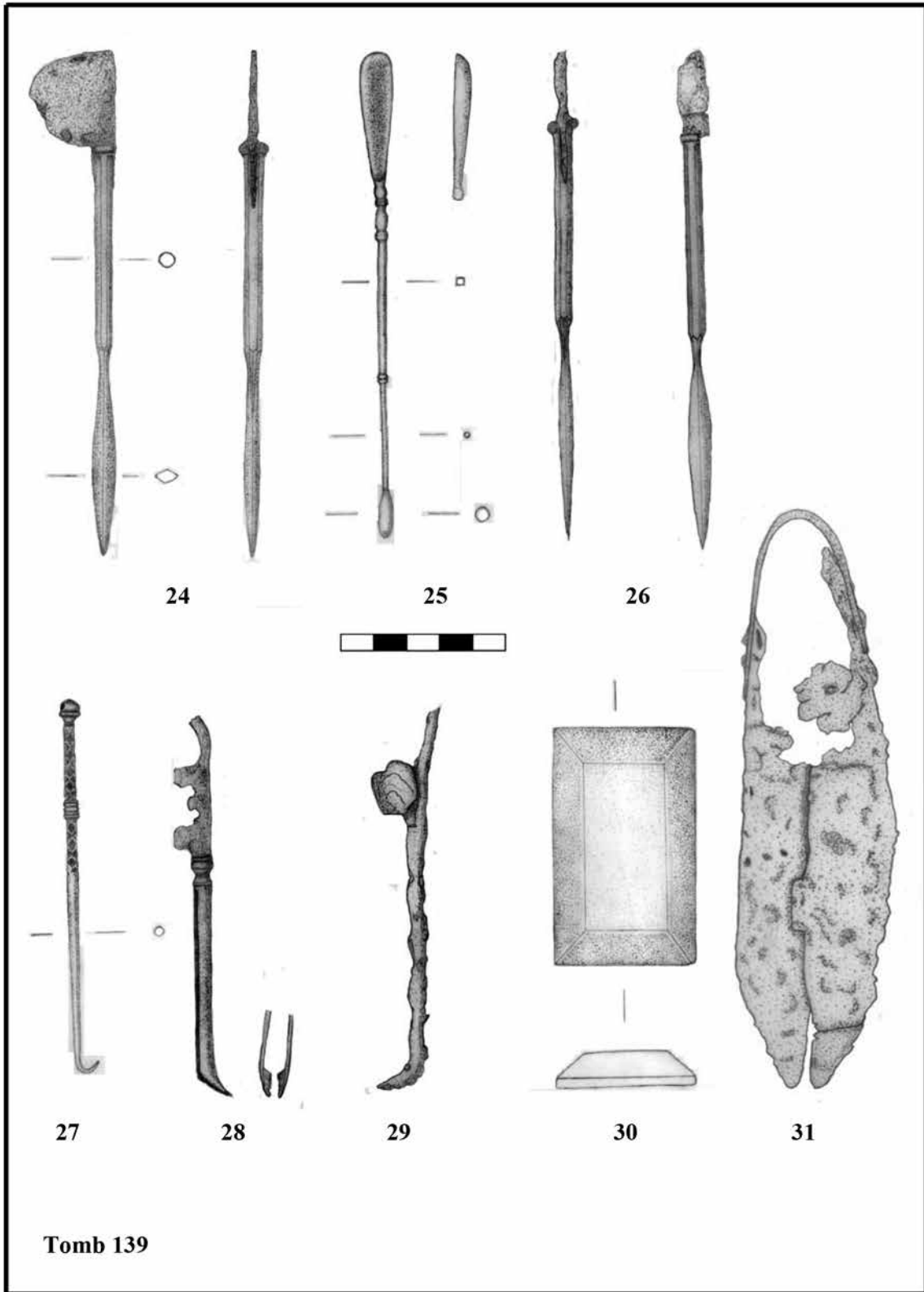
Pl. 16.11. Narrow edged cutters and knives (scaples) (by M. Arslan and A.R. Erdoğan, 2011).



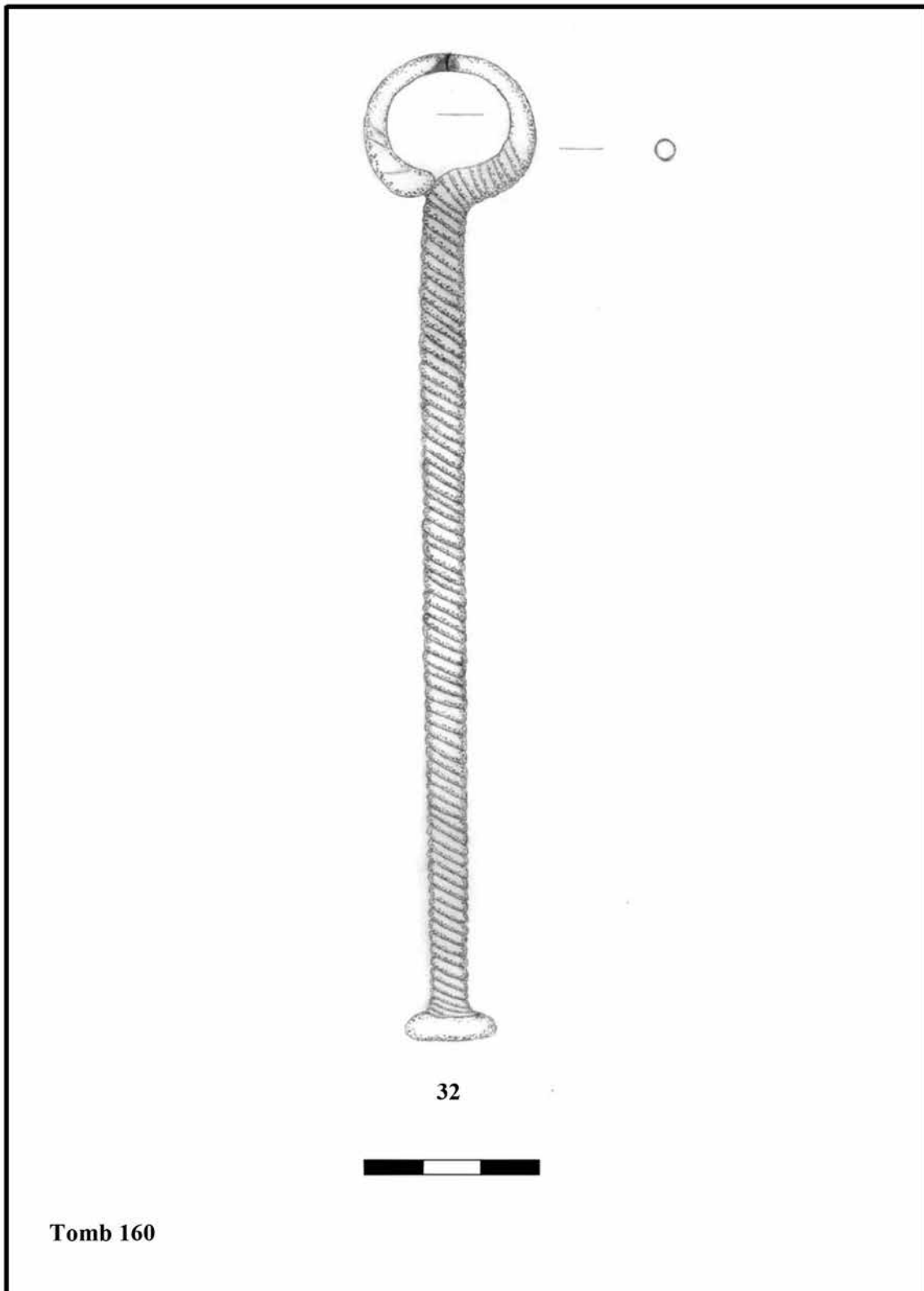
Pl. 16.12. An iron scissor from Grave 130 (by M. Arslan and A.R. Erdoğan, 2011).



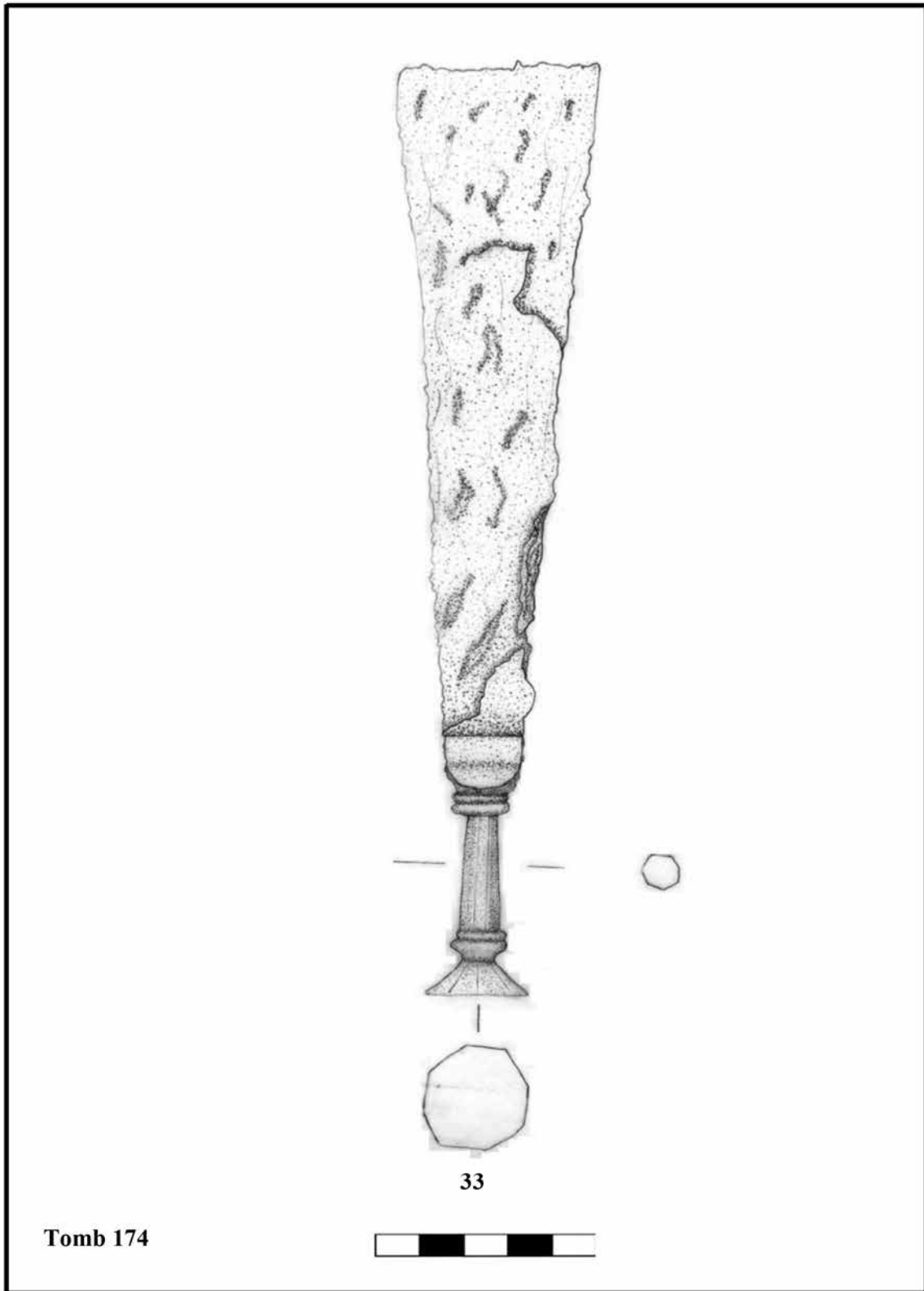
Pl. 16.13. A narrow-edged cutter found in the Grave 138 (by M. Arslan and A.R. Erdoğan, 2011).



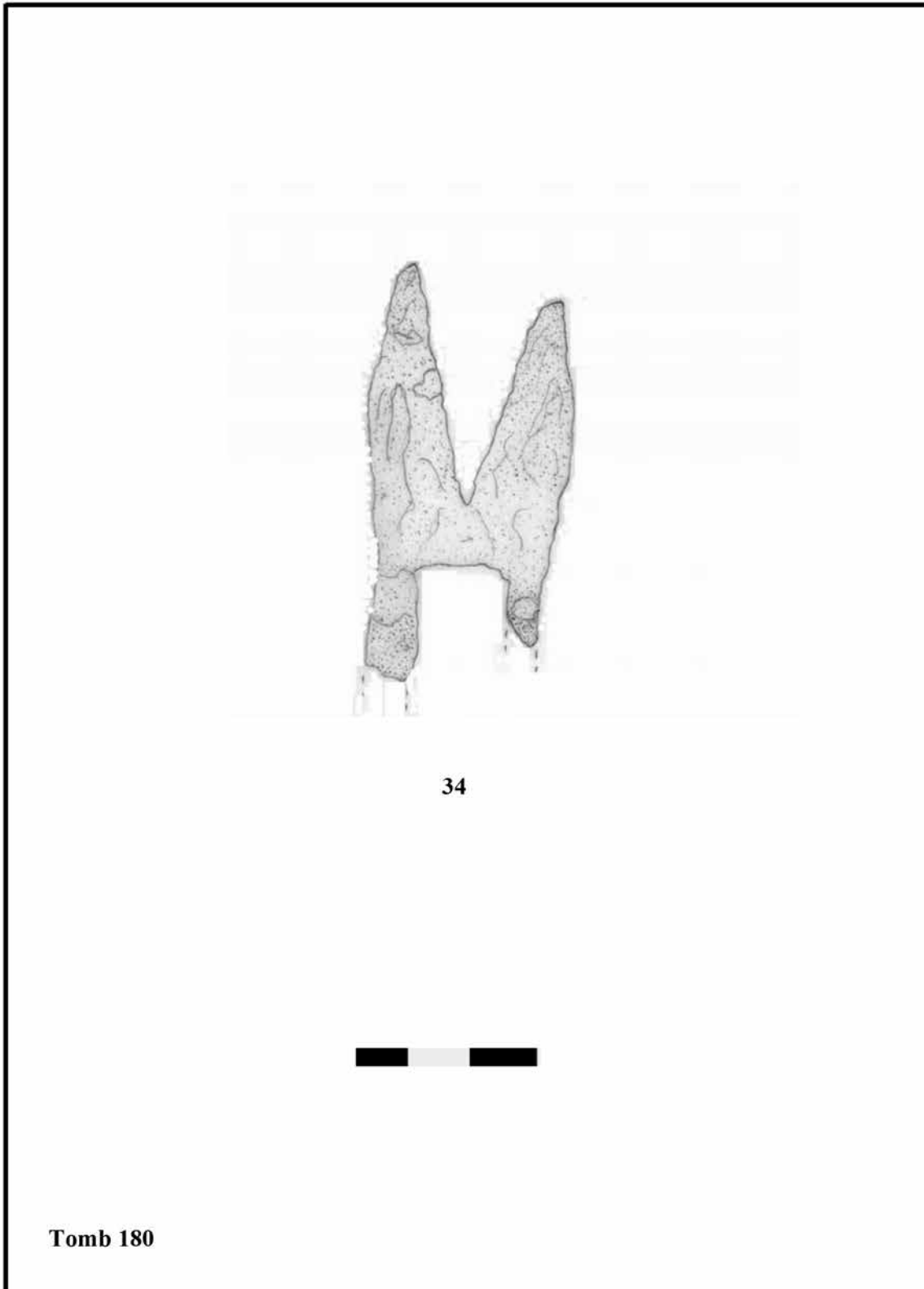
Pl. 16.14. Tools for *oricularim specillum*: knives (scaples), iron scissors, a kit for surgical tools and dispensing trays (by M. Arslan and A.R. Erdoğan, 2011).



Pl. 16.15. A further implement found in the Grave 160 (by M. Arslan and A.R. Erdoğan, 2011).



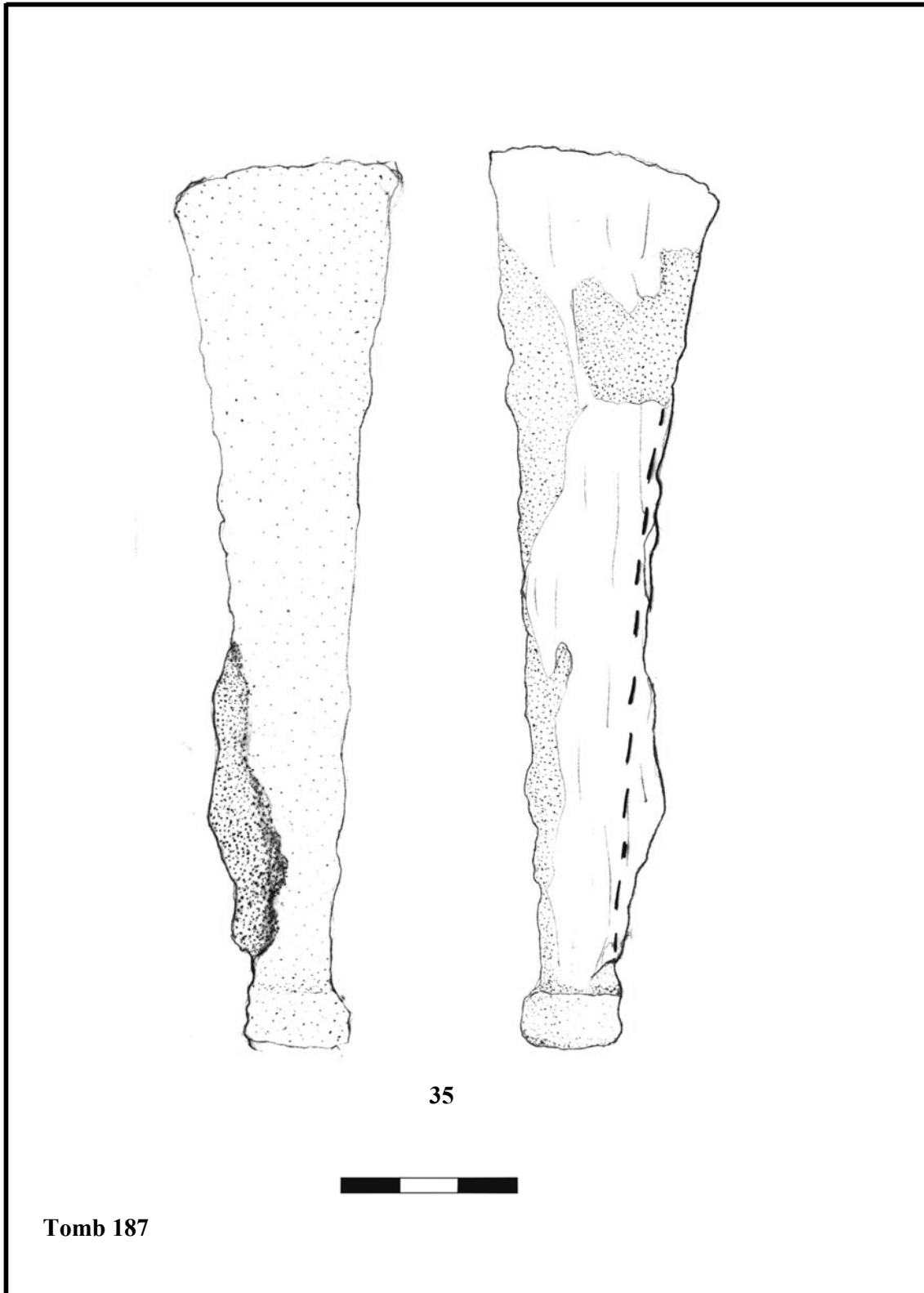
Pl. 16.16. A wide-edged cutter found in the Grave 174 (by M. Arslan and A.R. Erdoğan, 2011).



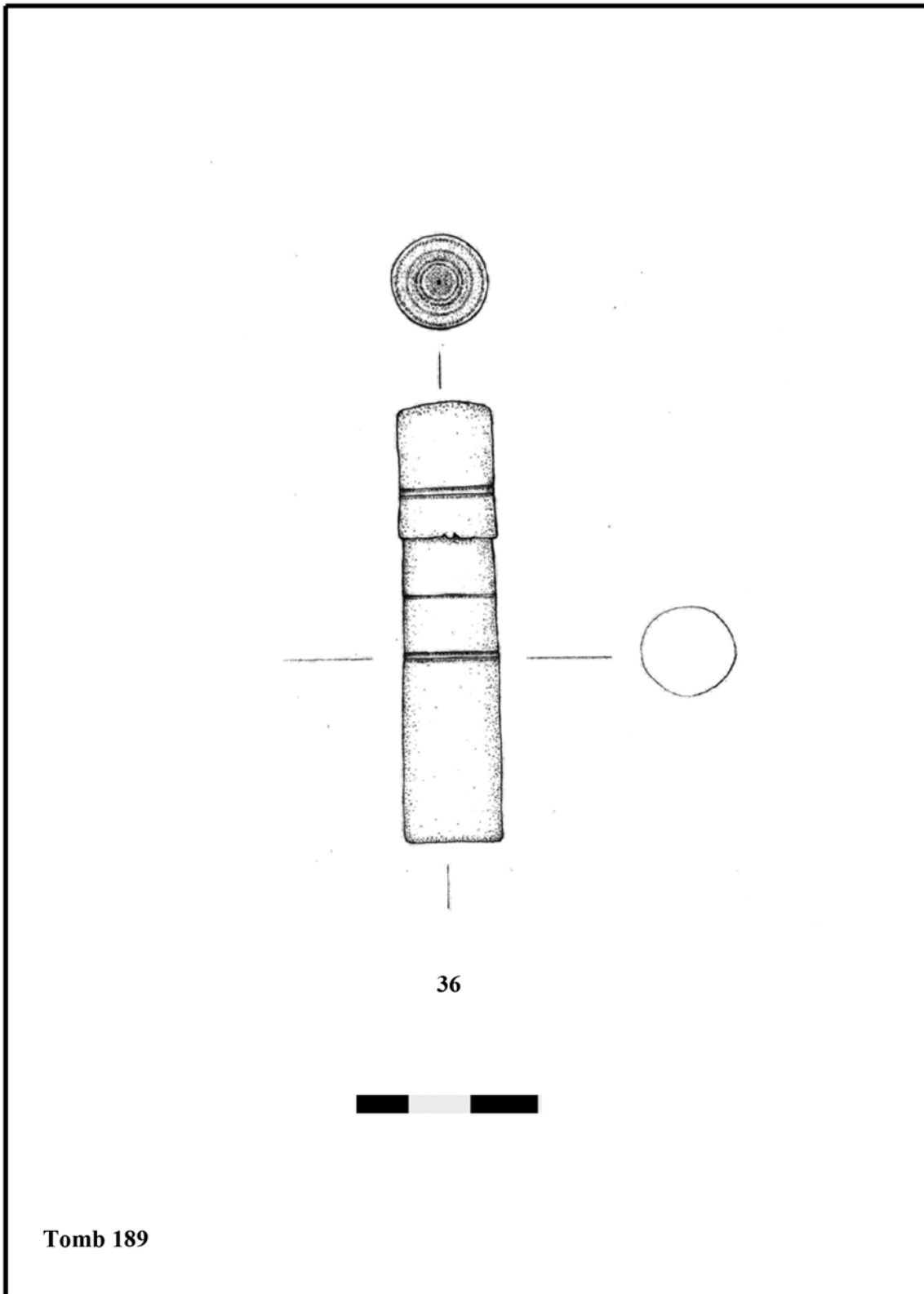
34

Tomb 180

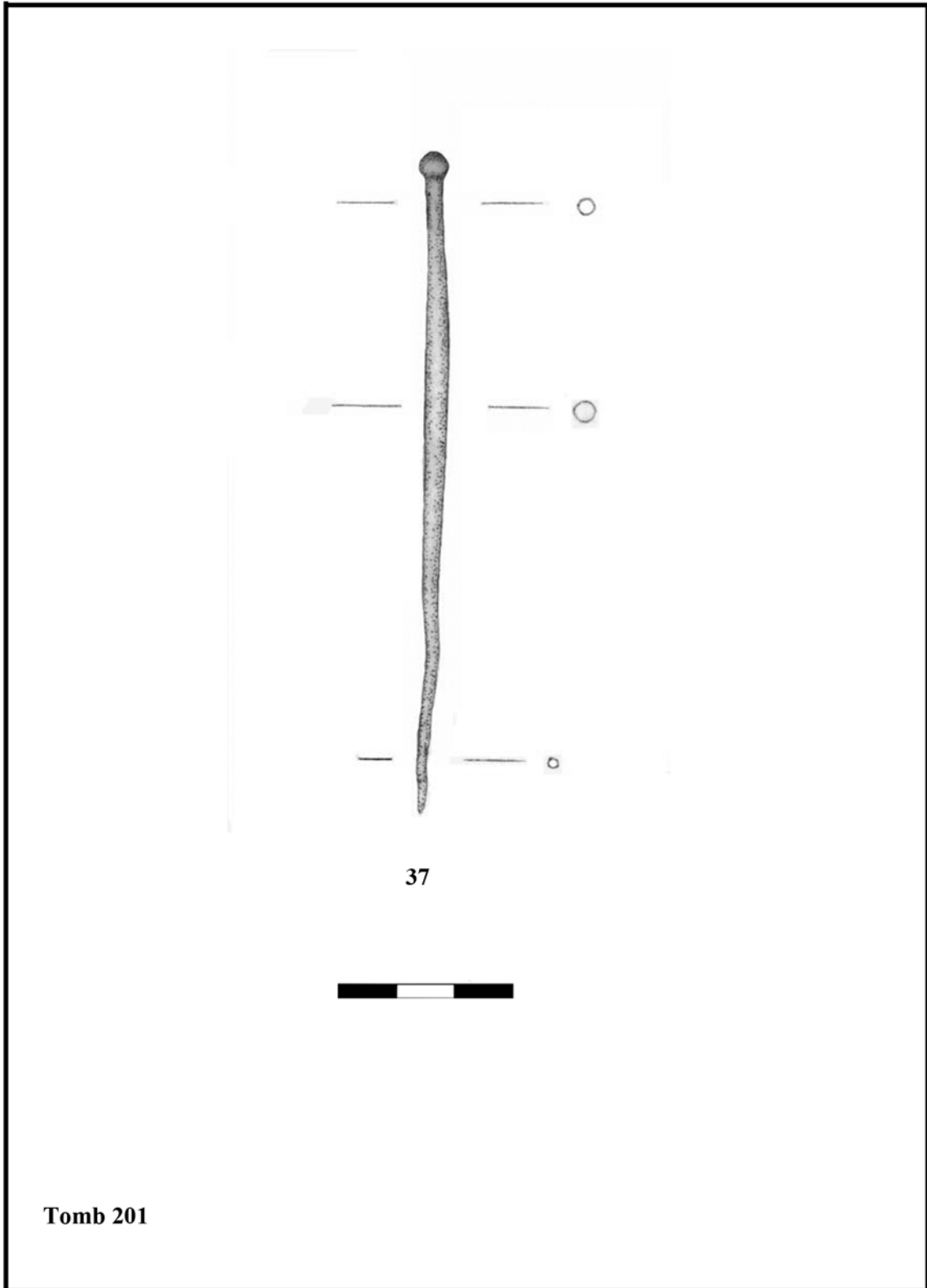
Pl. 16.17. A scissor found in the Grave 180 (by M. Arslan and A.R. Erdoğan, 2011).



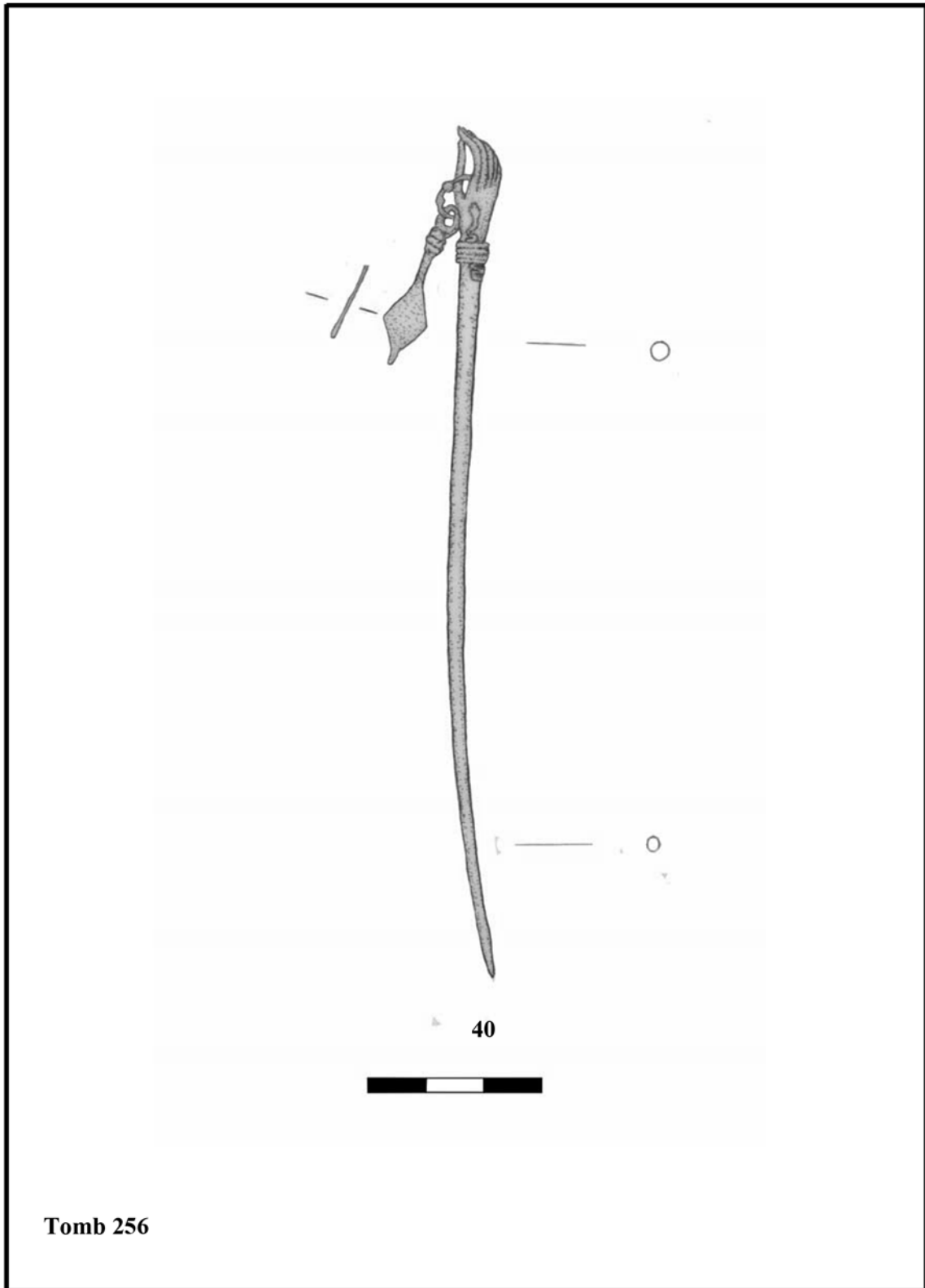
Pl. 16.18. A wide-edged cutter found in the Grave 187 (by M. Arslan and A.R. Erdoğan, 2011).



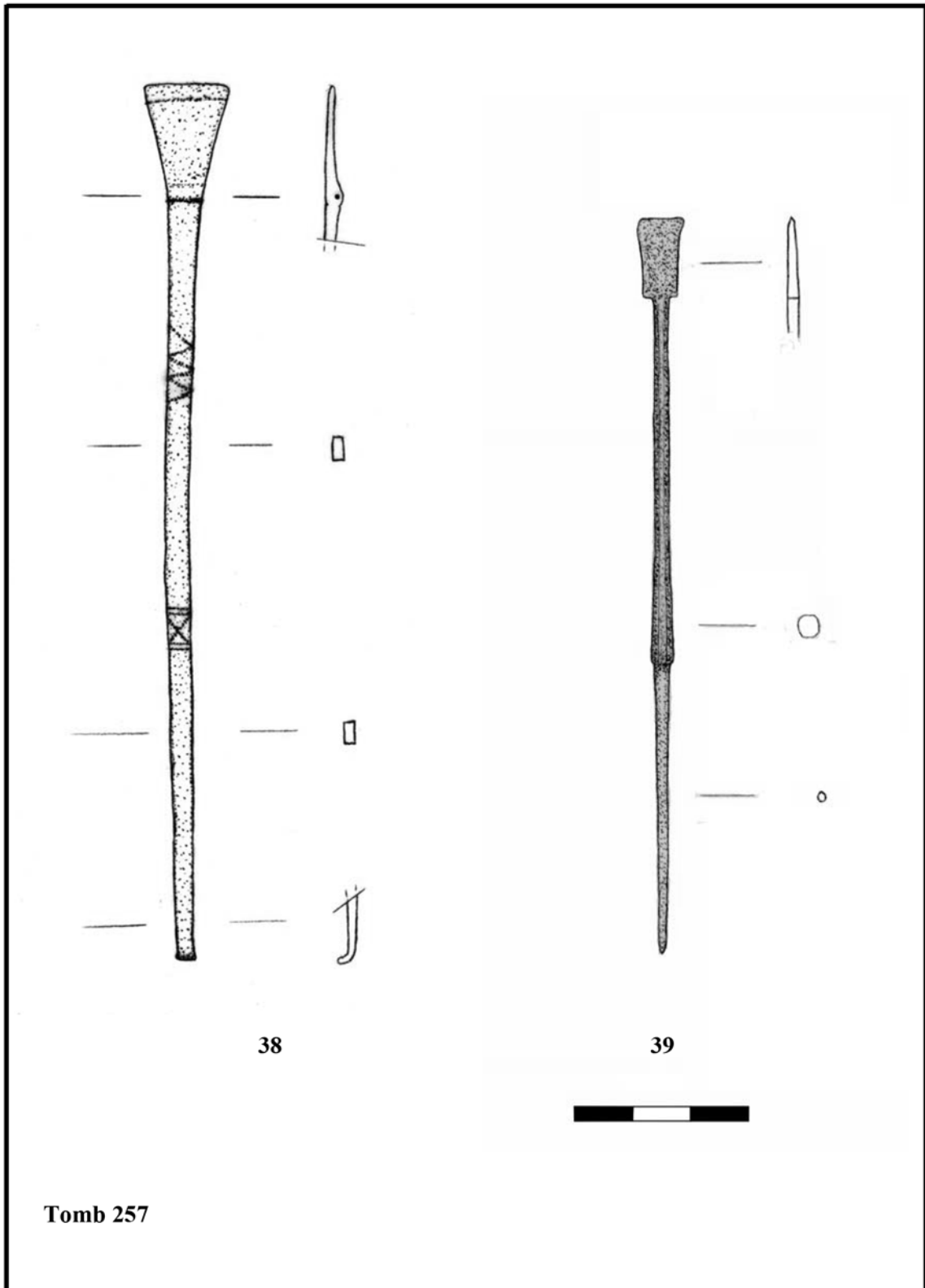
Pl. 16.19. A medicine-ointment case found in the Grave 189 (by M. Arslan and A.R. Erdoğan, 2011).



Pl. 16.20. A drill found in the Grave 201 (by M. Arslan and A.R. Erdoğan, 2011).



Pl. 16.21. A further implement found in the Grave 256 (by M. Arslan and A.R. Erdoğan, 2011).



Pl. 16.22. Narrow edged cutters (by M. Arslan and A.R. Erdoğan, 2011).

Five Roman *Fibulae* in the Museum of Kahramanmaraş in Southeastern Turkey

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Abstract: In this brief article five bronze *fibulae*, currently on display in the Museum of Kahramanmaraş and belonging to the Roman period, will be presented. These five examples, which are rare, are significant for the Roman archaeology of Asia Minor.

Keywords: *Fibula*, Alesia type *fibulae*, enamelled *fibulae*, Roman period, Museum of Kahramanmaraş, ‘Zwiebelknopffibel’.

Özet – Kahramanmaraş Müzesi’nde Beş Roma *Fibulası*: Bu makalede konu edilen fibulalar Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izni ile çalışılmıştır.

Bu kısa makalede Kahramanmaraş Müzesi’nde sergilenmekte olan ve Roma Dönemi’ne ait beş adet bronz *fibula* tanıtılacaktır. Nadir rastlanan bu beş örnek de Anadolu’nun Roma Dönemi arkeolojisi için oldukça önemlidir.

Anahtar Kelimeler: *Fibula*, Alesia tipi *fibulalar*, mineli *fibulalar*, Roma Dönemi, Kahramanmaraş Müzesi, soğan düğmesi formu *fibula*.

Introduction

The Archaeological Museum of Kahramanmaraş in southeastern Turkey was founded in 1947, in a 16th century building in the heart of the city to house ancient and historical artefacts gathered throughout the region. A modern, purpose-built museum was erected in 1975 and reopened in 2012. Today, it displays more than 30,000 exhibits in seven exhibition halls. The modern city centre of Kahramanmaraş was formerly believed to correspond to the Late Hellenistic, Roman, and Early Byzantine city of *Germanicia Caesarea* in the province of Euphratensis (fig. 17.1), but lately some authors have suggested that this city was not directly located within the city centre of Kahramanmaraş. The name of the main site in this region, *Germanicia Caesarea* (Γερμανικεῖα) – probably in honour of Emperor Gaius Caesar Augustus Germanicus (*i.e.* Caligula, reigned between AD 37 and 41), was bestowed by the Romans, who conquered the fertile and geopolitically significant. The recent discovery of mostly intact mosaics at a site near the town centre of Kahramanmaraş shows the high standard of living in,

and considerable importance of this region, especially in the Late Roman period. This certainly depends on its geographical position, as it was placed at the intersection of important roads, and was still a highly strategically significant in the Middle Ages. Preliminary studies have shown that these mosaics belonged to Late Roman villas inhabited by the local élite and military leaders, and can be dated to between the fourth and fifth centuries AD. So far there have been few studies published about the archaeological and epigraphic presence of the Roman military in the region of Germanicia.

A *fibula* was a type of brooch in antiquity. Technically, the Latin term, *fibulae*, refers to Roman brooches; however, the term is widely used to refer to brooches from the entire ancient and early medieval world which correspond with Roman forms. *Fibulae* were used by soldiers and civilians; by men, women, and children on robes, shirts, dresses and cloaks, to fasten clothing or, in some cases, purely for decoration. They followed the straight pin, and were eventually replaced by buttons. They were perhaps most famous as the fastener on Roman military



Figure 17.1. Places in southeastern Anatolia, northern Syria, and northern Mesopotamia referred to in the text (by S. Pataci, 2018).

cloaks – the *sagum* and *paludamentum*. However, they were also used by Mycenaeans, northern Mesopotamians, Phrygians, Lydians, ancient Greeks, Persians, Celts, and Byzantines, from the end of the second millennium BC. to the first millennium AD in an area stretching between the western Europe, the Nordic and Baltic regions, and Iran. Archaeologically the details of a *fibula* can signify culture, tribe, sex, status or profession. A huge diversity of forms appeared, often delineating different cultures, peoples and tribes, though most examples can be described as bow *fibulae* with spring mechanisms.

Fibulae gained a new popularity among the Romans at the start of the Empire, though most Early Roman types appear to derive from Celtic or, in some cases, Early Germanic types. The Roman military and its associated civilian followers helped to spread different *fibula* designs throughout the Empire. The increasing presence of foreigners, or ‘barbarians’, in the Roman military ensured that many Roman designs spread beyond the borders of the Empire as well.

In the Early Roman period, *i.e.* until the end of the first century AD, the entire *fibula* – from the catch, to the bow, to the spring and to the tip of the pin – was created by shaping and bending a single piece of bronze with great expertise and skill. One-piece construction was rapidly replaced by two-piece construction in the mid-first century AD. In Asia Minor most *fibulae* were manufactured from bronze, and there were very few silver or iron *fibulae* during the Roman period.

Some Roman *fibula* types or groups are identified with several different names. These names can be related to a site, *i.e.* ‘Alesia *fibula*’, ‘Hod Hill *fibula*’ or ‘Nauheim *fibula*’. There are, however, three primary *fibula* designs – bow *fibulae*, plate *fibulae* and penannular *fibulae*. Bow *fibulae* are the most common type and were made in all the time periods and by most of the cultures that used *fibulae*.

Five Roman *fibulae* from Kahramanmaraş

The five Roman *fibulae* presented here, which are on display in the Museum of Kahramanmaraş, are of considerable importance as well-dated archaeological sources, but not have exact findspots or context. All of them were acquired from different local salesmen. The *fibulae* in the depot of the museum are excluded in this brief article. In fact, we can count on the fingers of one hand the studies expressly dedicated to Roman *fibulae* in present-day Turkey.¹ It seems that brooches from the time of the Roman civil wars are widespread in Asia Minor.

After the considerable abundance of *fibulae* in the Iron Age, both in Anatolia and in northern Syria and Mesopotamia, it seems that in the Achaemenid and later

Hellenistic periods this element of clothing disappeared, only to reappear in the Roman Imperial period. The presence of intact Roman *fibulae* in Turkish museums, as in Kahramanmaraş, suggests that they may derive from looted burial equipment.

All of the Roman *fibulae* in Kahramanmaraş belong to widely common types in Europe. The oldest *fibula* of the Roman period (cat. no. 1) belongs to an early period, not later than the first Augustan age, and the most recent can be dated to the second half of the fourth century AD (cat. no. 5).

The *fibula* of the Alesia type or its closer resemblances (cat. no. 1, **figs. 17.6a-b**) often has a decoration on the arch that does not currently have parallel in western Europe. The Alesia group of Roman bow *fibulae* were the first Roman hinged *fibula* type. Typologically their bow is in the form of a narrow triangle, wide at the head and tapering to a point at the foot. Some are plain, while others have moulded or incised decoration in low relief, or even one or more perforations – almost always in a triangular shape. In general, they are affiliated with the Roman military, which used them between the mid-first century BC. and early first century AD; after this they were replaced by the Aucissa group of *fibulae*. In the Alesia type the presence of longitudinal lines on the arch is quite common; equally common is a decoration of dashes towards the edges. We find this feature in a *fibula* from Trier in Germany, albeit with a much wider triangular arch.² A further *fibula* from Strassoldo near Aquileia in northeastern Italy, with an arch extended to the head, presents a decoration somewhat close to the cat. no. 1 in Kahramanmaraş.³ The decoration seen on the central part also appears in a brooch from southern Tyrol which is likewise with a triangle extended towards the head.⁴ The decoration formed by rows of oblique dashes towards the edges also appears in another *fibula*, said to come from the ‘eastern Mediterranean’,⁵ but with a very narrow and elongated arch. In fact, the *fibulae* of the basic Alesia type are present in France, northeastern Italy, Slovenia, and Croatia (ancient Dalmatia).⁶ One remembers, for example, the presence of two specimens in the Museum of Dion, a village in the northern foothills of Mount Olympus in Thessaly, Greece, of a type which is not known in the Roman West. We also remember a *fibula* similar to the Alesia type present in the Museum of Gaziantep in southeastern Turkey and dated 40–30 BC.,⁷ perhaps contemporary to ours in Kahramanmaraş.

The third *fibula* in Kahramanmaraş (**figs. 17.8a-b**) is a rare example of an enamel *fibulae* in Asia Minor. Enamel is a coloured crystalline glass-like substance used as decoration

¹ Bulgan and Feugère 2004, p. 17; Laflı and Buora 2006, pp. 37–46; Bulgan and Feugère 2007, pp. 215–24; and also Laflı and Buora 2012, pp. 417–34.

² Meller 2012, p. 474, fig. 95, no. 25.

³ Buora and Seidel 2008, pp. 93–95, no. 84.

⁴ From Sluderno/Ganglegg in southern Tyrol, Italy, housed in the Museo della val Venosta; cf. <artefacts.mom.fr> FIB.4018 as well as <www.provincia.bz.it>.

⁵ Meller 2012, pl. 94, no. 17.

⁶ Cf. the map of their distribution in <artefacts.mom.fr> FIB-4018.

⁷ Bulgan and Feugère 2007, p. 222, no. 1, fig. 5, no. 1.

on metal objects. It was used to decorate numerous Roman provincial *fibula* types, such as bow *fibula*, equilateral *fibula* and plate or disc *fibula*, mostly from the mid-second to the early third century AD. Its use on *fibulae* is in fact a Celtic invention, and its use in Roman times stems from the traditions of Romanised Celtic population. The use of enamel on Roman *fibulae* remained centred on the Rhine, though workshops are known in Britain and as far as Pannonia. Roman enamelled *fibulae* are found in small numbers throughout the Roman Empire and as far beyond as Scandinavia. However, any examples found outside the Britain – Rhine – upper Danube region were imported from these areas. Roman enamel *fibulae* are found in military camps, *canabae* and civilian settlements, but they were clearly popular in the wider military community.

Within the whole complex of the typology of *fibulae* with equal arms and enamelled decoration, we can distinguish a subgroup with similar characteristics to the one in Kahramanmaraş (fig. 17.2 and the appendix 1, below). On the rectangular central plate of this new type of *fibulae* there are two rows formed by three or four elements arranged in two groups of four, on either side of each separation line. These lines can, as in our case, be sinusoidal, with more curves, or even straight, or, as in a single case,⁸ completely missing. Only the elements of their central plate were decorated with enamel, mostly in brick or dark red.⁹ They are triangular shaped, sometimes with elements protruding from the sides, which make them look like a star. On the sides of the central plate there were also notches in the number of three or four on each side, lining up on the sides of a vertical line.

Our fig. 17.2 shows some of the varying decorations of this new subgroup of enamelled *fibulae*, presented above. It seems very likely that these *fibulae* derive from a restricted area. Within this area and in the immediate surroundings we can find similar *fibulae*, with different details, such as one from the Musée royal de Mariemont in Belgium (fig. 17.3a) and another one from the Springhead Roman town excavations in Southfleet, Kent, Britain (fig. 17.3b). As can be seen in fig. 17.4, the area of the distribution of this new subgroup of enamelled *fibulae* is rather limited. Here we see the areas of its concentration and irradiation; one is located near the ancient city of Iuliobona, modern Lillebonne, in the Normandy region in northern France (formerly the capital of the Celatae) at the western edge of the Belgian Gaul,¹⁰ and the other in the territories of the Sequani and the Helvetii. It is probable that the (main?) factories of such *fibulae* were located in this areas. A brooch housed in the Metropolitan Museum of Art (fig. 17.2, no. 9), with all the similar characteristics of the same group, has no certain provenance.¹¹

The dating this new subgroup of enamelled *fibulae* is based on a fixed point: since they were found in Britain their use cannot be earlier than the first half of the first century AD. Michel Feugère dates this type of *fibulae* between AD 60 and 90.¹² David Markreth published a very similar *fibula* in the Hattat Collection (fig. 17.2, no. 4): he proposes a date in the second century AD, for a similar (not identical) *fibula* from Caerleon in the northern outskirts of the city of Newport, Wales, Britain,¹³ where, as is known, the *legion II Augusta* was stationed. A *fibula* of this type was found in Vindonissa, modern Windisch in Switzerland, together with other finds of the third century AD.¹⁴ The third *fibula* in the Museum of Kahramanmaraş can therefore be included in this minor group of western European *fibulae*, which we would like to define as ‘enamelled *fibula* with equal arms, Alesia variant’. In fact, the first example of this type (fig. 17.2, no. 6) was found in Alesia, Mont Auxois, above the present-day village of Alise – Sainte – Reine in Côte d’Or, France in 1839 and was published by Jacques d’Arbaumont in 1894.¹⁵ Absolutely noteworthy is the fact that three other similar examples of the same type (fig. 17.2, nos. 1-3) were recovered in 1850 in the *necropolis* of Lillebonne.

Fibulae 2, 4, and 5 from the Museum of Kahramanmaraş belong to other groups: no. 4 (fig. 17.9) with its ‘strongly moulded bow’ belongs to a well-attested type in Noricum and Pannonia, where this was also most likely produced.

The fifth is a crossbow *fibula* with onion head ends or, as German scholars define it, a ‘Zwiebelknopffibel’, derived from prototypes of the third century AD. Erwin Keller¹⁶ and Philipp Marc Pröttel¹⁷ have distinguished six variants within the group, with different chronology. It was a common type during the Late Roman and Early Byzantine periods, distribution of which was already studied.¹⁸ It most commonly been found in the central and west part of the Late Roman Empire between the late third and fifth centuries AD, and along the Danube river towards the end of the fourth century AD. As far as Turkey is concerned, the authors have so far identified about thirty examples of ‘Zwiebelknopffibel’ in the entirety of Asia Minor (cf. fig. 17.5 and the appendix 2, below) which could demonstrate a transfer of people from those central European regions into this country. As a matter of course, many others could be housed in local Turkish museums which are still waiting to be published. We do not know if this population transfer coincided with the movements of Late Roman troops. However, one must be wary of this simplistic explanation. Based on a model from central Europe for Dura Europos, for example, a local workshop

⁸ From Xanten: Boelicke 2002, pl. 52, no. 1102.

⁹ The other enamel colours were orange, light blue, dark blue, green, bright yellow white and black. However, today many enamels have faded and even changed colour. Most have taken on a yellow-brown tone.

¹⁰ Hence, the *fibula* was perhaps carried by some people from Britain.

¹¹ Caillet 1997, p. 53, and fig. 6.

¹² <Artefacts.mom.fr> FIB-4121.

¹³ Markreth 2011, p. 170.

¹⁴ Riha 1979, p. 192, pl. 62, no. 1627.

¹⁵ D’Arbaumont 1894, p. 91, no. 460; and Lerat 1979, pp. 6–7.

¹⁶ Keller 1971.

¹⁷ Pröttel 1989.

¹⁸ Soupault 2003, p. 47, with further references; and Quast 2015, list of finding no. 1, p. 320, nos. 81–82.

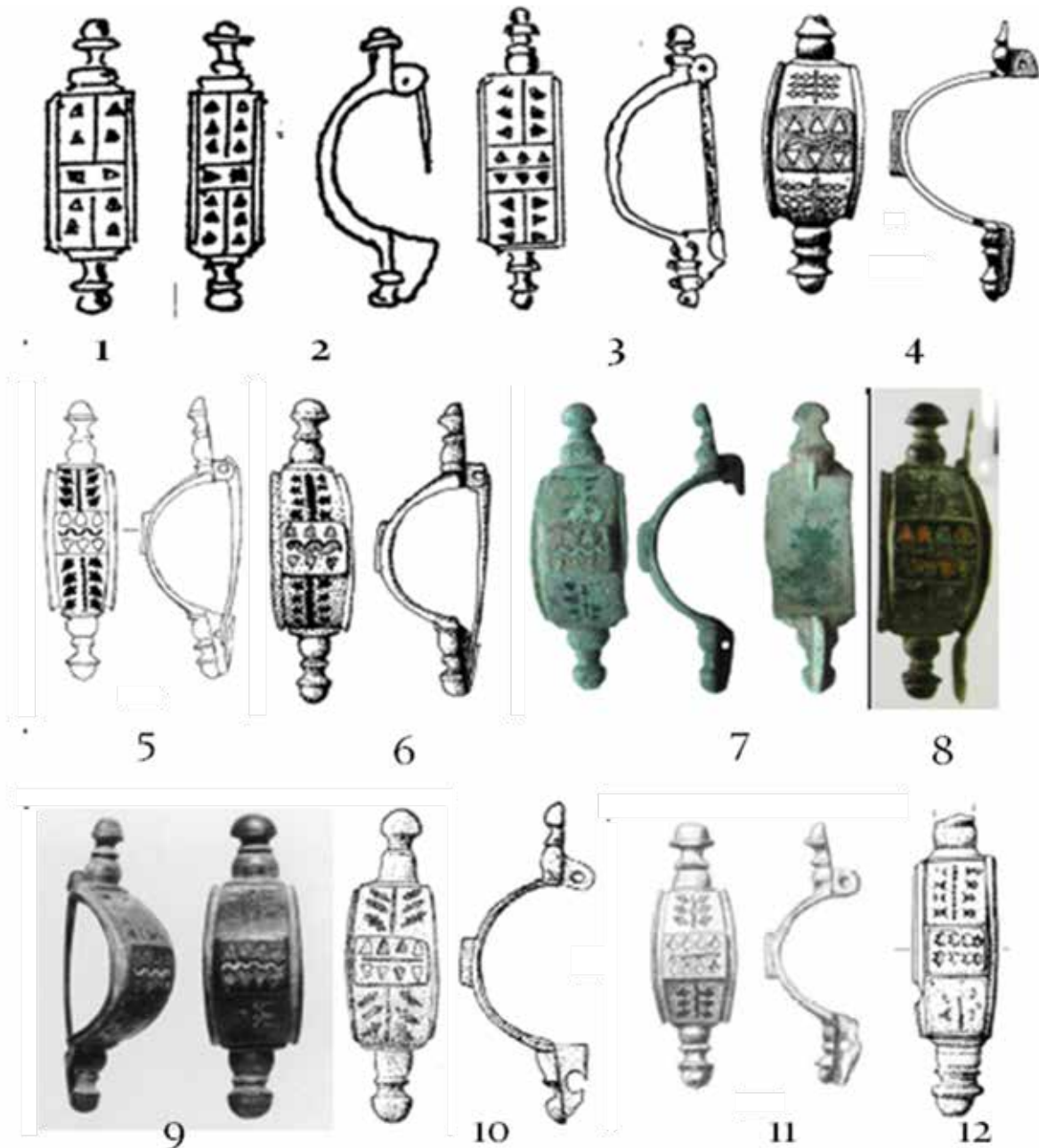


Figure 17.2. Map for the examples of enameled *fibulae* with equal arms, variant Alesia: 1: From Chatillon near Lillebonne, France (after Dollfus 1973, no. 489); 2: From Chatillon (after Dollfus 1973, no. 488); 3: From Chatillon (after Dollfus 1973, no. 487); 4: The Hattat Collection (after Mackreth 2011, no. 8160); 5: From Alesia, France (after Lerat 1979, 7, no. 329); 6: From Alesia (after Lerat 1979, 7, no. 460); 7: From Nether Wallop (Hants.), Britain (after <<https://finds.org.uk/database/artefacts/record/id/631213>>); 8: the Museum of Kahramanmaraş (by E. Laftı, 2004); 9: The Metropolitan Museum of Art (after Caillet 1997, fig. 6); 10: From Charnay-lès-Chalon, Champ de la Velle, France (after Feugère 1977, pl. 14, no. 87); 11: From Vindonissa, Switzerland (after Riha 1979, no. 1627); 12: From Xanten, Germany (after Boelicke 2002, no. 1102) (by M. Buora, 2018).

of *fibulae* could have existed in the first half of the third century AD.¹⁹

Catalogue

No. 1 (figs. 17.6a-b):

Measurements: L.: 68 mm; h: 34 mm. Brown patina.

Description: A large triangular arch, with two longitudinal grooves next to which a series of oblique incisions appear.

Three transversal lines before the foot which is pierced in the upper part and receives a transversal ornament.

Comparanda: Similar to type Alesia, like Feugère 1985, type 21a1. Parallel to a Roman brooch from Lugdunum (modern Lyon, France).²⁰

Dating: 80–20 BC.

No. 2 (fig. 17.7):

Measurements: L.: 82 mm; h: 43 mm. Green patina.

¹⁹ Cf. a short discussion: Schmid 2010, p. 44, fn. 38.

²⁰ Martin-Kilcher 2015.



Figure 17.3. Other *fibulae* similar to variant Alesia: 1: From Springhead Roman town excavations in Southfleet, Kent, Britain, after <www.flickrriver.com/photos/wessexarchaeology/1828419124/>; 2: The Musée royal de Mariemont, Belgium (after Callewaert 2012, fig. 5). These two examples were intentionally not shown on fig. 4, as there are probably numerous examples of this kind of *fibulae* and they need a specific treatment (by M. Buora, 2018).

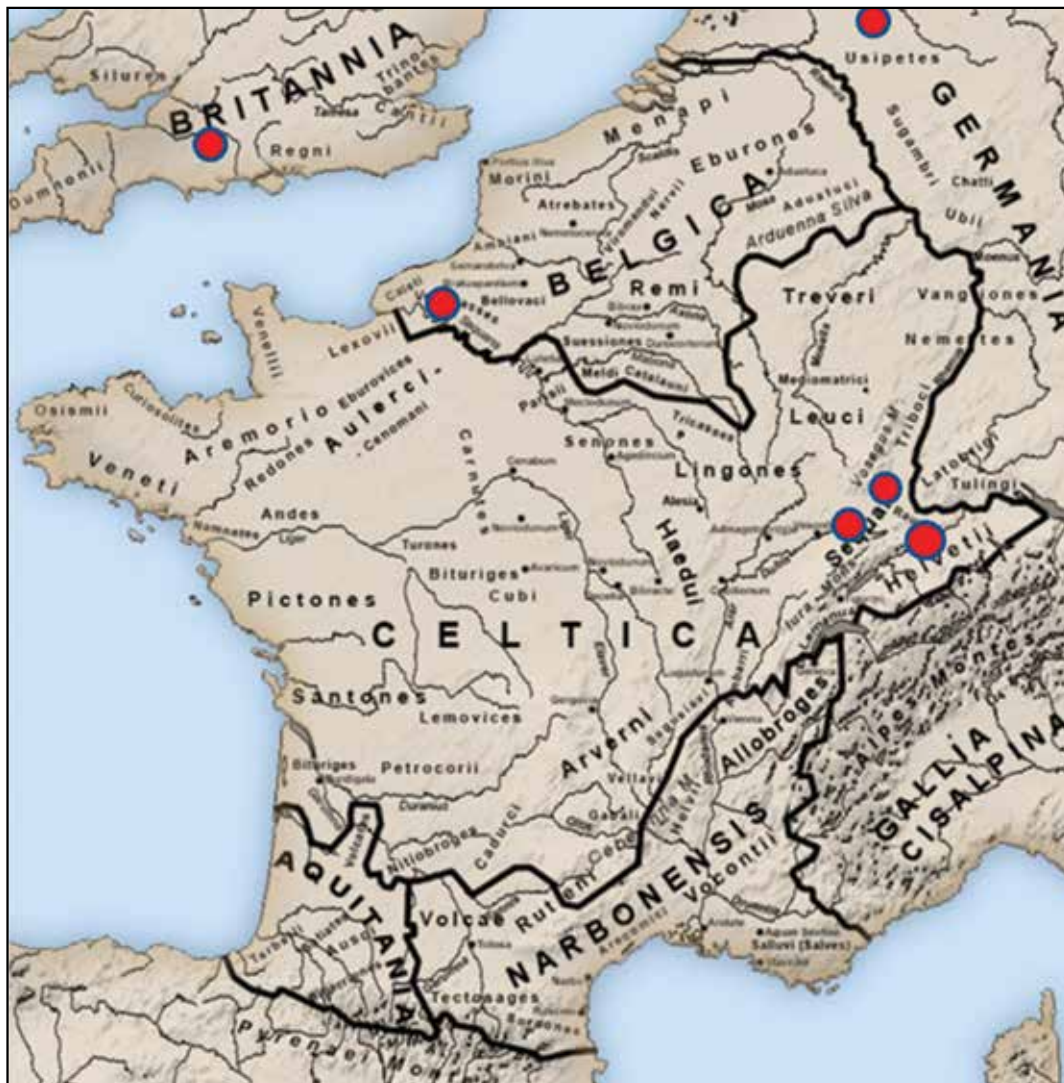


Figure 17.4. Map of the distribution of the enameled brooches, variant Alesia (by M. Buora, 2018).

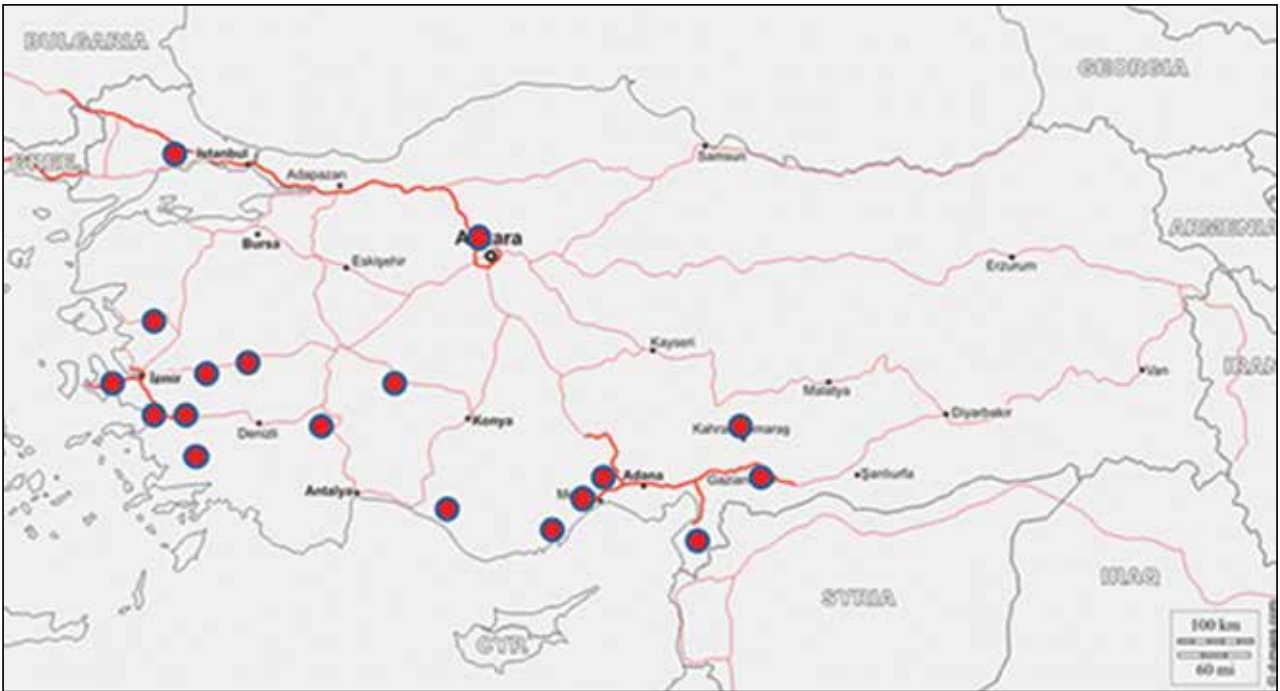


Figure 17.5. Map of the distribution of the ‘Zwiebelknopffibeln’ in Turkey (by M. Buora, 2018).



Figure 17.7. A fibula with particular catchplate in the Museum of Kahramanmaraş; cat. no. 2 (by E. Lafli, 2004).

Description: A hinged arch fibula, with a large container for the barb. Plain bow, with rounded and protruding edges. Flat, horizontal foot.

Comparandum: A similarly shaped foot appears on a fibula of the Alesia type from Treveri, Germany.²¹

Dating: Probably second half of the first century BC.

Figures 17.6a-b. A fibula, similar to Alesia type in the Museum of Kahramanmaraş; cat. no. 1 (by E. Lafli, 2004).

²¹ Cf. Meller 2012, p. 474, pl. 95, no. 25.



Figure 17.8a-b. An enamelled *fibula* with equal arms, variant Alesia in the Museum of Kahramanmaraş; cat. no. 3 (by E. Laflı, 2004).

No. 3 (figs. 17.8a-b):

Measurements: L: 67 mm; h: 24 mm. Straight pin is missing. Green patina.

Description: A *fibula* with a rectangular central plate and two symmetrical appendices. Its enamelled central plate is divided into three parts. The central one has three rows of four insertions, red in colour, almost cruciform. Two side parts are in turn divided into four squares, each of which has an enamelled insert.

Comparanda: Exner II group, Ettliger type 36, Riha 7,16, Feugère 26b, Callawaert III.A.1.b-c and Markreth 2.c1.

Dating: Other similar *fibulae* have typologically a modified form in the following decades.

No. 4 (fig. 17.9):

Measurements: L: 83 mm; h.: 31 mm. Dark green patina.

Description: A *fibula* with a ‘strongly moulded bow’, median disc, elongated triangular foot and enlarged end with a protruding central point.

Comparanda: Christian Gugl has assembled previously distinguished types in the forms of A 70 and A 73 in a single group called ‘Type Almgren 70/73 a-b’.²²

Dating: From the Flavian dynasty, *i.e.* AD 69–96, to the age of Trajan/Hadrian, *i.e.* AD 98–138. Several *fibulae* of the same type are present in Dacia,²³ clearly brought there by people coming from the west. In the Balkan area similar *fibulae* were manufactured, for example, in



Figure 17.9. A so called ‘strongly profiled foot’ brooch in the Museum of Kahramanmaraş; cat. no. 4 (by E. Laflı, 2004).

Viminacium in Serbia,²⁴ but in a different form. Our *fibula* seems to be an import from Central Europe (perhaps from northern Italy?).

No. 5 (figs. 17.10a-b):

Measurements: L.: 88 mm; h.: 40 mm. Straight pin is missing. Smooth green patina.

Description: A ‘Zwiebelknopffibel’ or cruciform *fibula*, almost intact, with a fragmented pin. The central onion bulb has a pyramidal section, while the lateral ones are spherical. Foot chamfered.

The upper part of the arch, with a trapezoidal section, has a zig-zag or wolf-like decoration.

Comparandum: Type Keller-Pröttel 3/4 A.

Dating: Second half of the fourth century AD.

Conclusions

The five *fibulae* that have been studied here allow us to reach the following conclusions: First of all, the presence of people from Roman central Europe in Kahramanmaraş is attested at least from the mid-first century BC., based on the evidence of the *fibula* of the Alesia type (cat. no. 1). More precisely, we can identify the presence of people from the Gallic or Belgian area in southeastern

²² Gugl 1995, pp. 18–19. Also *cf.* Gugl 2008.

²³ Cociş 2004, pp. 49–50 (type 8a2b1).

²⁴ Redžić 2010, pp. 120–23.



Figure 17.10a-b. A 'Zwiebelknopffibel' in the Museum of Kahramanmaraş; cat. no. 5 (by E. Lafli, 2004).

Anatolia between the end of the first century AD and the early decades of the second century AD, due to the presence of an enamelled *fibula* belonging to a small group that we have called an 'Alesia variant' (cat. no. 3). So, another person from the eastern Alpine arc, *i.e.* from Noricum, Pannonia or northeastern Italy, wore a *fibula* of the Almgren 70/73 type in the region of Kahramanmaraş during the second century AD. Finally, in the second half of the fourth century AD, a civil servant official, or more probably a soldier, had a 'Zwiebelknopffibel' with him (cat. no. 5) that has come down to us in Kahramanmaraş.

The questions of which Roman *fibulae* reached Asia Minor, or were received there, during the Roman period, as well as the coming back into fashion of these dress-fasteners in Late Antiquity, are the most important issues for *fibula* research in Asia Minor, which should be addressed by further publications with new materials.

Appendix 1: List of the previous finds of the enamelled symmetrical brooches, variant Alesia (fig. 17.2)

France

1. Alesia, discovered in 1822, now in Museum of Dijon (D'Arbaumont 1894; Lerat 1979, p. 7, no. 460),
2. Alesia (Lerat 1979, no. 329),
3. Charnay-lès-Chalon, Champ de la Velle (Feugère 1977, pl. 14, no. 87),
4. Chatillon near Lillebonne (Dollfus 1973, no. 487),

Switzerland

5. Vindonissa-Windisch (Riha 1979, p. 192, no. 1627),

Britain

6. The Hattat Collection (Mackreth 2011, no. 8160),

7. Nether Wallop (Hants.) (<<http://artefacts.mom.fr/fr/result.php?id=FIB-4121&find=TCH&pagenum=1&affmode=vign>>; <<https://finds.org.uk/database/artefacts/record/id/631213>>),

Germany

8. Xanten (Boelicke 2002, p., pl. 52, no. 1102),

Turkey

9. Kahramanmaraş (present article, cat. no. 3).

Appendix 2: List of the previous finds of the 'Zwiebelknopffibeln' from Turkey

Type Keller – Pröttel 1

1. Istanbul, Sadberk Hanım Museum (unpubl.),
2. Sandıklı-Afyonkarahisar, now in the Museum of Akşehir (Tekocak 2012, p. 38),
3. Gaziantep, <Artefacts.mom.fr> type Keller-Pröttel 1A FIB 4554 (accessed on 1 July 2021),
4. Römisch-Germanisches Zentralmuseum Mainz, type Keller – Pröttel 1A (Soupault 2003, p. 21),

Keller – Pröttel 2

5. Sarılar Köprüsü (bridge of Syceon) in Juliopolis, Keller 2A, grave 100 (unpubl.),
6. Heracleia Perinthus (today Marmara Ereğlisi; Öztürk 1999, p. 246, fig. 6),
7. Silifke, Keller 2A (Lafli and Buora 2006, p. 44, no. 19, pl. 14, h),
8. Museum of Alanya (Lafli and Buora 2006, p. 45, no. 27, pl. 15, c),
9. Pergamum, Keller 2 (Soupault 2003, p. 21),
10. Worcester Art Museum (MA), from the excavations in Antioch-on-the-Orontes (Becker and Kondoleon 169, no. 34),

Keller – Pröttel 3/4

- 11–12. Ödemiş, Keller-Pröttel 3/4A (Lafli and Buora 2012, nos. 17–18),
13. Gaziantep, Keller-Pröttel 3/4A (Bulgan and Feugère 2007, p. 223, no. 7),
14. Kahramanmaraş, Keller-Pröttel 3/4A (present article, cat. no. 5),
15. Gaziantep, Keller-Pröttel 3/4B (Bulgan and Feugère 2007, p. 223, no. 8),
16. Istanbul-Louvre, type Keller-Pröttel 3/4B (Soupault 2003, p. 21),
17. Gaziantep, Keller-Pröttel 3/4C (Bulgan and Feugère 2007, p. 223, no. 9),
18. From the theater of Nysa, Keller-Pröttel 3/4C (Kadioğlu and von Rummel 2003, p. 106, no. 11),
- 19–20. Römisch-Germanisches Zentralmuseum Mainz, Keller-Pröttel 3/4C (Soupault 2003, p. 21),
21. Sardis, Keller-Pröttel 3/4C (Soupault 2003, p. 21),
22. Ephesus (Lafli and Buora 2012, p. 11, no. 12; Pülz 2020, pl. 39, T. 111),
23. Ephesus (Pülz 2020, pl. 39, T. 112)
24. From the 'East Church Complex' in Labraunda (Blid 2012, p. 217 and fig. 182, 4),

25. From a grave at Burdur near Sagalassus (Çetin 2015, p. 14),
26. Juliopolis, in this book, chapter 18, p. 138, p. 142, Fig. 18.13.
27. Sardis (Waldbaum 1983, no. 683).
28. Akşehir (Tekokak 2012, pp. 37–38).
29. Bolu (Bilir 2019, no. 4060, fig. 3,19).

Keller – Pröttel 5

28. Mersin (Lafli and Buora 2006, p. 42, pl. 13, b, no. 5.),
29. Gaziantep (Bulgan and Feugère 2007, p. 223, no. 10),
30. From somewhere in Asia Minor, now in the musée d'Archéologie nationale, St-Germain-en-Laye (Soupault 2003, p. 52),
31. Tarsus (Lafli and Buora 2006, p. 46, pl. 15, e-f, no. 28).

Keller – Pröttel 6

32. From southeastern Anatolia, now in the Archäologisches Museum of Frankfurt (Soupault 2003, p. 22; and Soupault-Becquelin 2003, p. 53),
33. Kalaba (quoted by Lafli and Buora 2012, p. 11, no. 25),
34. Mersin (Lafli and Buora 2006, p. 42, pl. 12, e-f, no. 3),
35. A golden example, in the Burton Y. Berry Collection-Indiana University Collection; acc. no. BYB 76.75.25; purchased in the 19th century (Deppert-Lippitz 2000, p. 55, fig. 16; and Soupault-Becquelin 2003, p. 53),
36. Gaziantep (Lafli and Buora 2012, p. 11, no. 28).

Notes and acknowledgements

This collection was studied with an authorisation granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums on December 9, 2004 and enumerated as B.16.0.AMG.0.10.00.01/707.1/14. The necessary documentation was assembled during December 2004. fig. 1 was arranged by Dr Sami Patacı and Mr Zeki Akkurt (both from Ardahan) in 2018 to whom we would like to express our sincere gratitude and appreciation.

Bronze Finds from the *Necropolis* of Juliopolis in Bithynia (Northwestern Central Turkey)

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Abstract: Juliopolis in ancient Bithynia was flooded by the Sarıyar Dam built in Ankara's Nallıhan district in 1956 after rescue excavations conducted by the Museum of Anatolian Civilisations that uncovered a *necropolis* along the dam. Even though the site is below water level, finds from the northern *necropolis* provide information on Juliopolis of the first century AD to Late Antiquity. There are different types of graves, and bronze artefacts such as libation cups, jewels, surgical tools and strigils, as well as gold, silver and iron jewellery and pottery and glass. The finds from Juliopolis are an important source for the understanding of the city, Bithynia and neighboring central Anatolia.

Keywords: Bronze bowls, vase, coins, mirror, Phrygia, Juliopolis, Bithynia, northwestern central Turkey.

Özet – Juliopolis Nekropolünden Bronz Buluntular: Bithynia Bölgesi'nde yer alan Juliopolis antik kenti, Ankara'nın Nallıhan ilçesinde 1956 yılında Sarıyar Barajı'nın inşa edilmesiyle sular altında kalmıştır. Barajın inşa edilmesinden önce Anadolu Medeniyetleri Müzesi tarafından yürütülen kurtarma kazılarıyla, bu alanda bir nekropol ortaya çıkarılmıştır. Alan, su seviyesinin altında olsa da kuzey nekropolisden elde edilen buluntular İ.S. 1. yy. dan Geç Antik Çağ arasındaki Juliopolis hakkında bilgi vermektedir. Farklı mezar tipleri, libasyon kapları, mücevherler, cerrahi aletler ve strigillis gibi bronz eserler dışında altın, gümüş ve demir mücevherler, seramik ve cam eserler ele geçmiştir. Juliopolis'dan ele geçen bu eserler, antik kent dışında Bithynia ve komşu Orta Anadolu'yu anlamak için önemli bir kaynak niteliğindedir.

Anahtar Kelimeler: Bronz kaseler, vazo, sikkeler, ayna, Phrygia, Juliopolis, Bithynia, Kuzeybatı Orta Anadolu.

The history of Juliopolis

Even though William Mitchell Ramsay locates Juliopolis a little west of Nallıhan in the province of Ankara¹ coins belonging to Juliopolis and excavated in 2009 confirmed that the ancient site was located around Çayırhan, which is 35 km east of Nallıhan² (**map 18.1, fig. 17.1**). Juliopolis (Ιουλιούπολις) was on the borders of Bithynia and Galatia. It was a Phrygian city and it was known as Gordiokome ('village of Gordios') because of its Phrygian founder King Gordios. Probably it was a small town in the Hellenistic era. Strabo mentions a chieftain called Kleon who enlarged the borders of the city in the first century

BC. Kleon was in good relation with Mark Antony in the time of second *triumvirate* (43 BC.-AD 33), but then he probably predicted the result of the Actium War and became an ally of Octavian. To mark this collaboration Kleon changed his city's name to Juliopolis ('city of Julius') referring to Julius Caesar. As a result, Juliopolis became an important city of Bithynia, and Kleon gained additional lands in Mysia and Pontus regions during the reign of Augustus. Kleon was the high priest of the cult of Zeus Abrettenos, and we know that just before Kleon died Augustus also gave him the title of the high priest of Pontus Komana.³

¹ Ramsay 1890, p. 241.

² Arslan *et al.* 2010, p. 272.

³ Strabo, 12.8.



Figure 18.1. Location of Juliopolis in Bithynia (by M. Arslan, 2011).

Pliny the Elder refers Juliopolis as a Bithynian city and called it as Gordiokome. He calls the people of the region as ‘Helizons’ referring to one of the Homer’s seaman tribes.⁴ Pliny the Younger, who was appointed as governor of Bithynia in AD 103 by the Emperor Trajan, described the city to the emperor as ‘a border town with many pilgrims which has a lot of traffic’ in his letters and he defends the city against the plans for a possible campaign by the Emperor.⁵ We also know that in his first journey in 117 to Asia Minor, Emperor Hadrian stayed in Juliopolis for a while in November.⁶

Juliopolis becomes very important because of its location on the pilgrim path, beginning from Constantinople through Nicaea and Ancyra and ending in Judea, in the Early Byzantine era. Thus, the city became a trade centre between fourth and ninth centuries AD. We can also regularly see the names and signatures of the bishops of the city in the records of Great Councils of the Orthodox Churches. In the ninth century, Juliopolis’s name was changed to Basiliium-Basileion, referring to Emperor Basil I (AD 867–886) and remained so until the 11th century AD. After this time the name of the city is not mentioned

in the literature, and this shows that the city had lost its importance.⁷

Excavations in the *necropolis* of Juliopolis

The ruins of Juliopolis and the village of Sarılar remained under water following the construction of Saryıar Dam in the 1950s. Our excavation area was the northern *necropolis* of the city which has different grave types with many finds.⁸ The six main grave types of the *necropolis* of Juliopolis are: rock-cut chamber tombs with one *kline* or two or three *klinai*; graves cut into bedrock with stone lids; stone *sarcophagi*; graves dug in to the soil with stone lids; graves dug into soil and graves covered with roof tiles are (fig. 18.2). 209 graves were excavated or cleaned in between the 2009 and 2010 rescue excavations seasons. Two bucranial reliefs found on the wall corners of two different graves may reference the Mên cult in the region (fig. 18.3). Wooden coffins were totally preserved in two bedrock cut graves; one *sarcophagi* yielded curious finds including two wooden combs and partly preserved leather

⁴ Pliny the Elder *Nat.*, 5.40.

⁵ Pliny the Younger *Let.*, 9.4.51.

⁶ Syme 1988, p. 160.

⁷ Ramsay 1890, pp. 244 and 446; French 1981, pp. 38–52; as well as Mitchell 1993.

⁸ For more details about excavations, photographs of the artefact and many of the other figures: Arslan *et al.* 2011, pp. 271–304; and also Arslan *et al.* 2012, pp. 169–88; Cinemre 2013, pp. 407–26. For types of graves and recent anthropological research in the Juliopolis *Necropolis*: Büyükkarakaya *et al.* 2018, pp. 111–26.



Figure 18.2. Grave types in Juliopolis (by A.R. Erdoğan and M. Arslan, 2011).

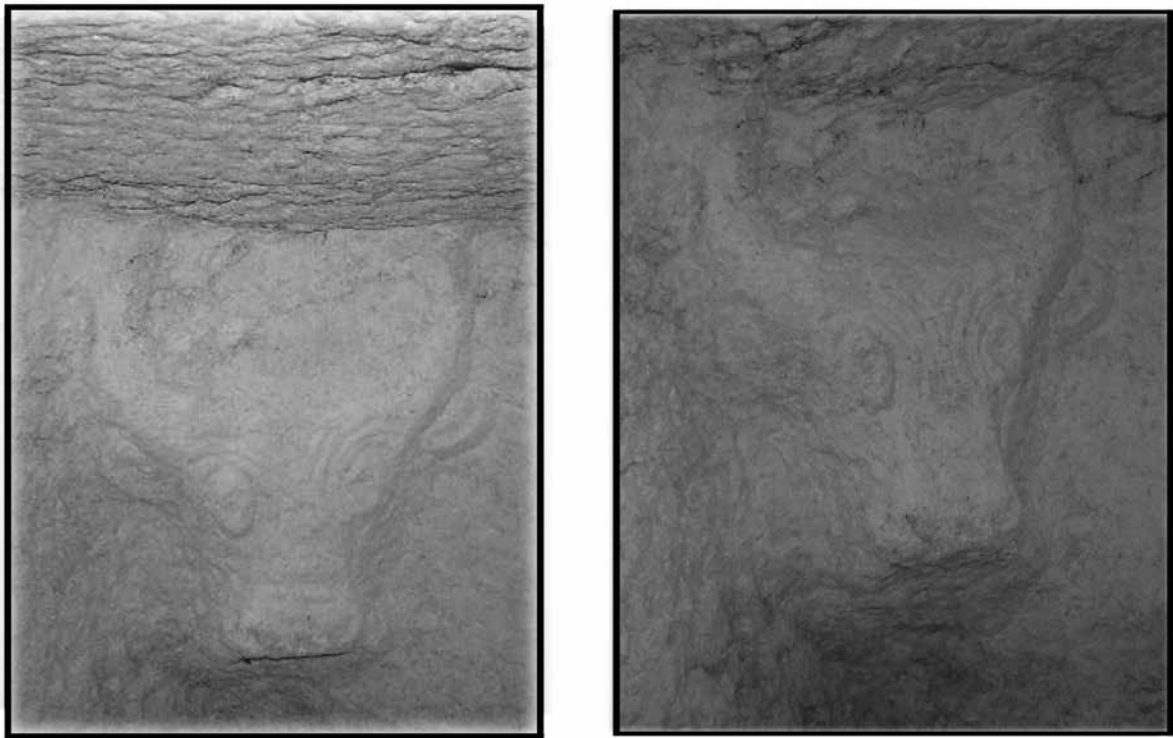


Figure 18.3. *Bucrania* (by A.R. Erdoğan and M. Arslan, 2011).

shoes. Research showed that these coffins are made of juniper, and the sodium sulfate in the soil most likely protected these organic materials.⁹

Finds

The two excavation campaigns in Juliopolis produced very rich and sufficient finds.¹⁰ Gold, silver and bronze jewellery, ornaments decorated with semi-precious gems and objects made of bone and glass as gravegoods were excavated from the graves excavated. Hair pins, earrings,

necklaces, rings, bracelets, clothes ornaments and mirrors were also found in the graves of Juliopolis' *necropolis*. The groups of bronze objects found in Juliopolis included bowls and vases, strigils, mirrors, daily use objects and surgery tools¹¹ found in context. We will examine some of bronze objects from the Juliopolis as an introduction.

Bowls and vases

One of the earliest finds from Juliopolis is a basket-handled bronze *aryballos* from Grave 180 (h.: 5.2 cm,

⁹ Discussion and analysis about these coffins: Akkemik and Metin 2011, pp. 105–14.

¹⁰ For the monographs of Juliopolis excavations, bronze and all other finds: Arslan and Metin 2013.

¹¹ An article about the surgery tools found within the graves from Juliopolis will be publishing in this monograph by Mustafa Metin. We need to mention the importance of these tools which gives certain dates by the numismatic evidences: Arslan and Metin 2013.

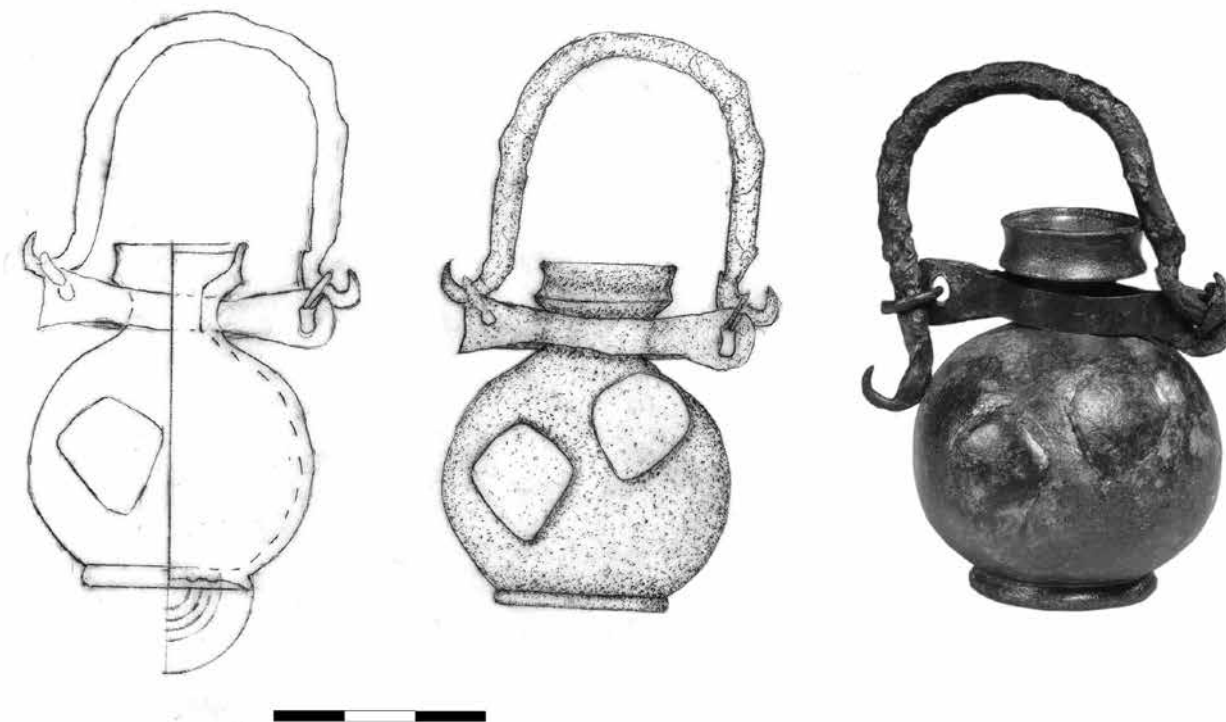


Figure 18.4. A basket handled *aryballos* (drawing by E. Yıldırım and M. Arslan, 2011).

fig. 18.4) which was much restored in antiquity; we date it to AD 98–99 with the numismatic evidence from the excavations. There are four bronze *oinochoe* dating to the second century AD (fig. 18.5) and a bowl with a basket handle/*situla* (h.: 9.2 cm, diam.: 14.5 cm; fig. 18.6) dating to late second century AD. There were also some iron vases found with in the same context which may be related to medical or cosmetic storage. A bronze *askos* (h.: 13.5 cm), with a missing lid, in the shape of a wineskin with vine and grape decorations, is a unique example of this form (figs. 18.7-8). It is dated to the second quarter of the third century AD using the numismatic evidence. It was probably used in rural Dionysian festivals, which we know from ancient writers such as Suidas and Aristophanes.

Strigilai

Four bronze strigils were found in the excavations of Juliopolis, three of them in good condition (fig. 18.9). Also found were three iron strigils. One of the bronze strigils is in the shape of a dolphin has its brazed fins and tails applied on the surface (fig. 18.10). It probably dates from the second century AD. Another interesting strigil has geometric and linear decorations on its handle and must be from the late first century AD (fig. 18.10). Other strigils with a smooth surface can be dated to second century AD using numismatic evidence.

Mirrors

Seven circular bronze and one silver mirror were found in the excavations in Juliopolis (fig. 18.11). Surprisingly, there is no example of a vertical-handled mirror from Juliopolis;

instead four mirrors were found with a horizontal handle on the backside. Their sizes differ from 5.9 cm to 14.4 cm. A mirror found in grave 147 has incised decorations like Amazon shields and can be dated to the first half of the second century AD (fig. 18.12).

A military fibula

A ‘Zwiebelknopffibeln’ *fibula* (L: 6.7 cm), in the form of a Tatar arrow, is an interesting find which may tell us the job of the occupant of grave 101 (fig. 18.13). A coin of Phillip II minted in AD 244–246 was found in the same contexts. Perhaps the owner was a military officer, but that is not certain.

Miscellaneous

There were many cylindrical cases of different heights and widths found in the graves excavated in Juliopolis. The find context of these objects, which were probably used for medical treatment or as writing instruments, show that these tools were in use between the late first century and the third century AD. Locks and hinges, chains, handles and swings are other bronze objects found in the graves.

Coins

It is unclear whether Juliopolis had been granted the status of neocorate.¹² Nevertheless, coins from the graves of Juliopolis are the most valuable data to determine the location of the city and its chronology. These coins

¹² French 1981, p. 51; as well as Johnston 1983, p. 65.

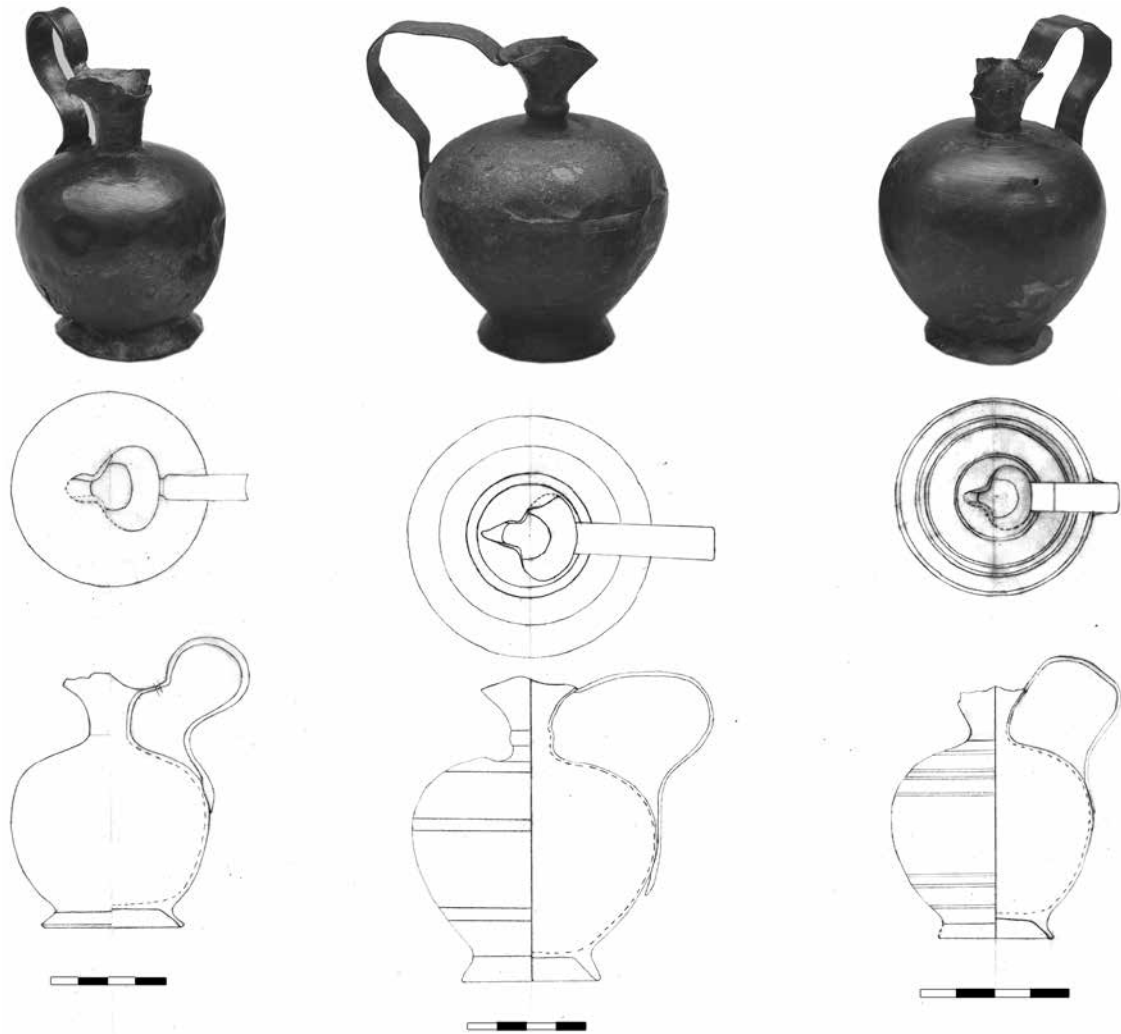


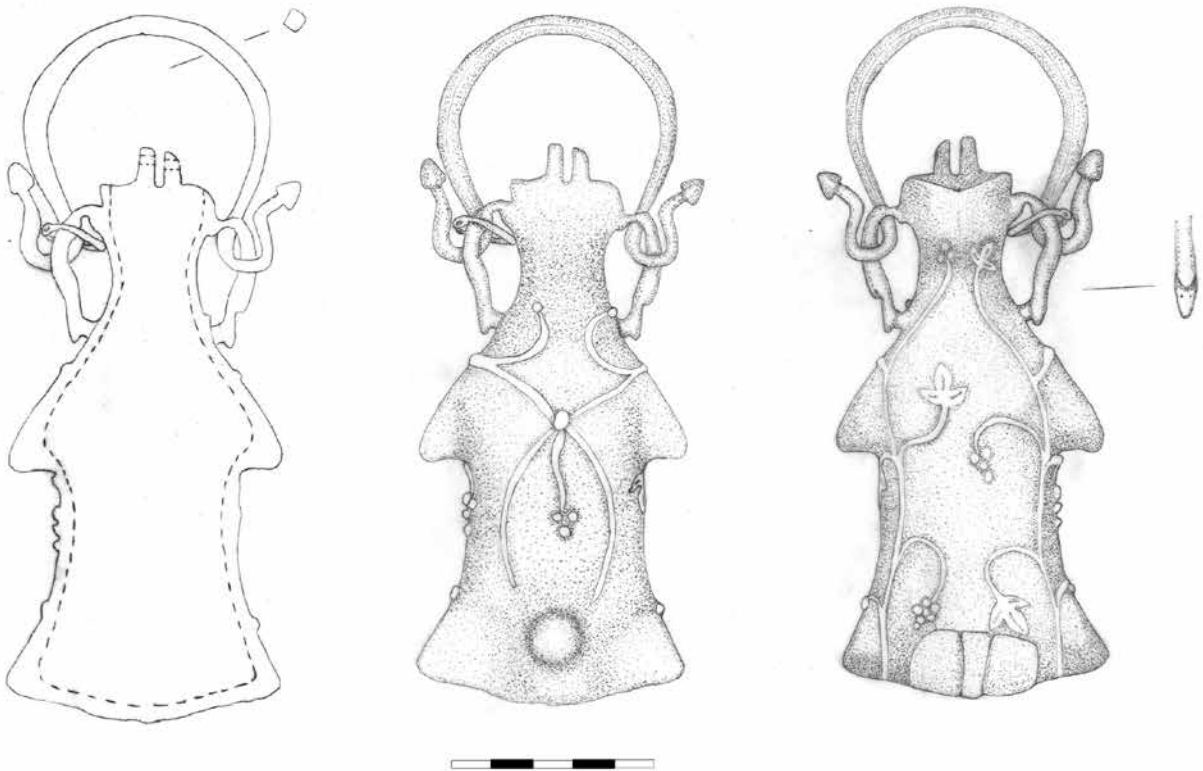
Figure 18.5. Bronze oinochoae (drawing by E. Yildirim and M. Arslan, 2011).



Figure 18.6. Bowl with basket handle (drawing by E. Yildirim and M. Arslan, 2011).



18.7



18.8

Figures 18.7-8. Bronze *askos* in form of a wineskin (drawing by E. Yıldırım and M. Arslan, 2011).

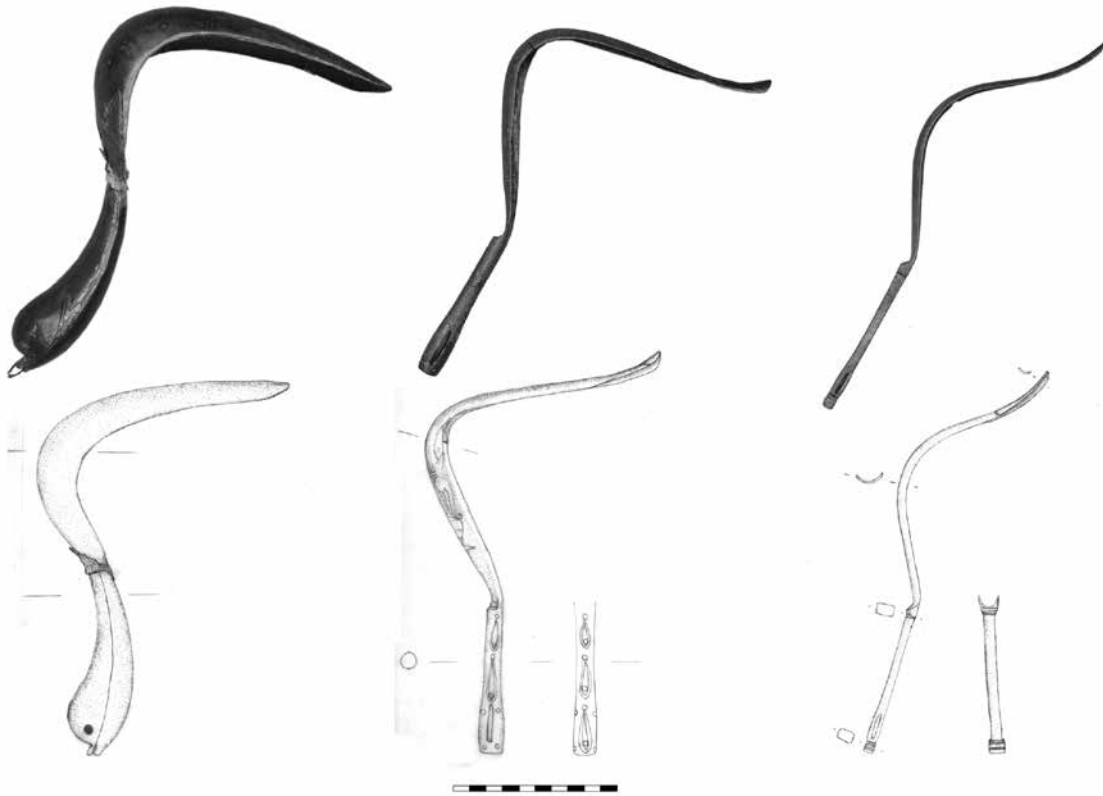


Figure 18.9. Strigiles (drawing by E. Yıldırım and M. Arslan, 2011).



Figure 18.10. Details of strigiles (by A.R. Erdoğan and M. Arslan, 2011).



Figure 18.11. Bronze and silver mirrors (by A.R. Erdoğan and M. Arslan, 2011).

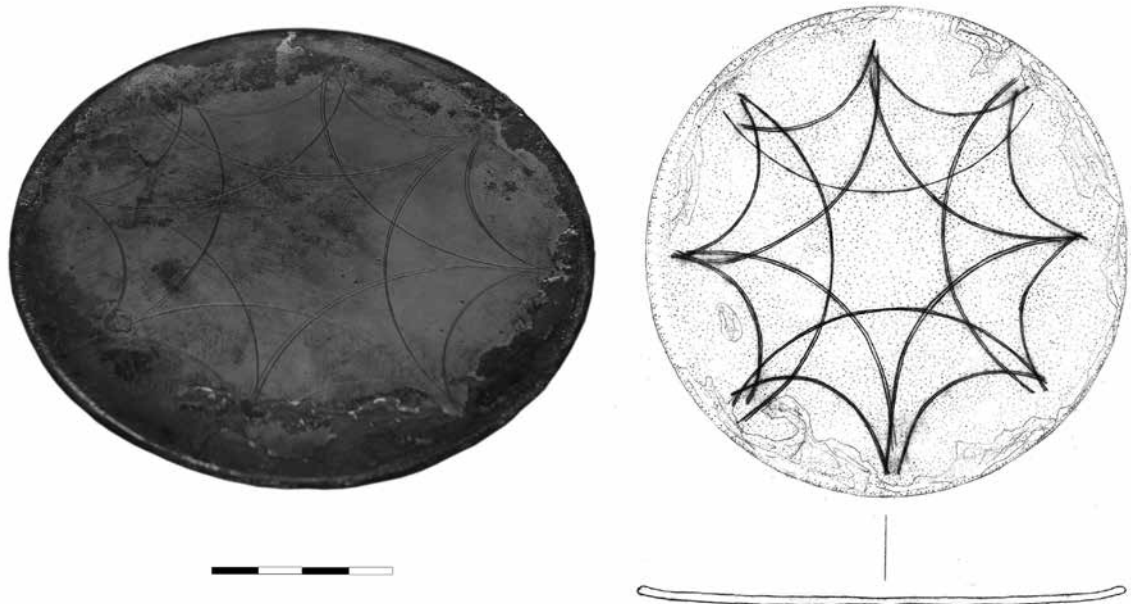


Figure 18.12. A bronze mirror with scraping decoration (drawing by E. Yıldırım and M. Arslan, 2011).

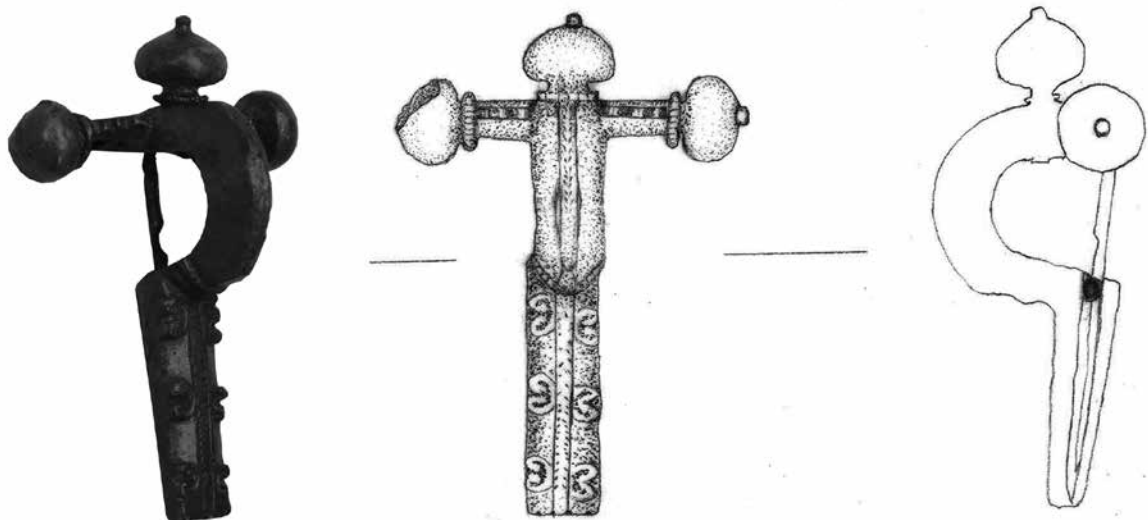


Figure 18.13. A bronze fibula (drawing by E. Yıldırım and M. Arslan, 2011).

also evidence the local cults of the city. Mên, Dionysus, Asclepius, Heracles, Hermes, Zeus and Cybele are the main figures depicted on Juliopolis coins. Coins from other neighbouring cities were also found in the graves, including Roman silver denarii.

Conclusions

This two season-study by Museum of Anatolian Civilisations produced many and significant finds from this forgotten ancient site. The most important part of this research is the chance to record and examine the context of a Roman city which can provide exact dates not only for Bithynia, but also for neighbouring regions and the rest of Anatolia. This border city and its precious finds will be a reference for other ongoing studies and for future ones.

Notes and acknowledgements

We need to thank M. Metin, O. Cinemre, T. Çelik and M. Türkmen for their precious effort during the excavations. Photographs were made by A.R. Erdoğan, drawings by Ebru Yıldırım and page-settings by Alihan Tazeoğlu.

A Bronze *Balsarium* from Juliopolis

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Abstract: This article will discuss a boar-shaped bottle found during the rescue excavations in a grave in the *necropolis* area in Juliopolis, one of the most important ancient cities in the Bithynia region. This object can be compared in terms of size and form with the *balsarium* form, which was used for the preservation of oils and medicines in the Roman period, it has been dated to the third century AD due to its grave context. In the literature on bronze objects it is one of the remarkable and rare specimens with its boar shape.

Keywords: Bronze *balsarium*, the rescue excavation, *necropolis*, Juliopolis, Bithynia.

Özet – Juliopolis'ten bir Bronz *Balsarium*: Bu makalede, Bithynia Bölgesi'ndeki önemli antik kentlerden birisi olan Juliopolis'de 2010 yılında gerçekleştirilen kurtarma kazıları sırasında, *nekropol* alanındaki bir mezarda ele geçen domuz formlu bir şişe tanıtılacaktır. Boyut ve form bakımından Roma Dönemi'nde kokulu yağlar ve ilaçların saklanması için kullanılan *balsarium* formu ile karşılaştırılabilecek bu örnek, mezar konteksi nedeniyle, İ.S. 3. yy. başına tarihlenmiştir. Literatürde nadir bulunan domuz formlu şişe örneği ait olduğu döneme özgü dikkat çekici örneklerden birisidir.

Anahtar Kelimeler: Bronz *balsarium*, kurtarma kazısı, *necropolis*, Juliopolis, Bithynia.

In this article, a boar-shaped bronze *balsarium* will be considered. Generally, animal-shaped *balsarium* samples are rarely found in the literature and are represented with few samples in the Roman period. The object was discovered during the rescue excavations in 2010 in Juliopolis, one of the most important cities in the Bithynia region in Anatolia.

The ancient city of Juliopolis is located in Gülşehri site, Çayırhan town, the Nallıhan district of Ankara, and was covered by the Sarıyar Dam Lake in the 1950s. In the following years, the *necropolis* area was identified on the northern bank of the dam lake.

The first excavations in the area were initiated by a team from the Museum of Anatolian Civilisations in 1991–1992. In these studies, only a few graves were excavated and important finds were not found. The main excavations in the *necropolis* started in 2009–2012 under the directorship of the Museum's Director, Dr Melih Arslan. As a result of these four years of scientific work, a total of 434 graves were opened and thousands of important finds were found. The city of Juliopolis is situated at the eastern part of the

Bithynian region, a the junction of Bithynia and Galatia. The archaeological and

epigraphic informations of the city's early period do not go back earlier than the Hellenistic period.¹ The finds of *lagynos* and *skyphos* dating back to the second century BC., which were unearthed at the grave number 218 at the *necropolis* site, are evidence of the settlement's occupation from the Hellenistic period.²

At the end of the first examinations, it was understood that only the tomb numbered 218 was Hellenistic period in date. All of the rest of 433 graves studied in the years 2009–2012 are dated to between the first and fourth centuries AD. The graves contain numerous finds: bronze, bone, glass, ring stones, leather shoes, wooden coffins,

¹ French 1981, p. 43. David French mentioned in his 1972 survey that he saw 'a city wall and a door, various small structures, fragments of the Phrygian and Hellenistic periods of pottery extending above and to the west of the Sarılar Bridge, and potteries of the Middle Ages'. However, excavations in the *necropolis* have not yet yielded a Phrygian find.

² Arslan and Metin 2013, p. 24.



Figure 19.1. The Grave M-174 (by the authors, 2011).

jewellery, as well as a large number of coins,³ gold and silver ornaments unique to the Roman period. Bronze and iron medical instruments⁴ found in some of the graves have shown us that the grave occupants were doctors.⁵

The example discussed in the article was found in cist grave no. M-174 (fig. 19.1) in the *necropolis* area during excavations in 2010. In this cist grave, skeletons and grave goods belonging to a woman and a man were discovered. Among bones of the male skeleton, a *balsamarium*, glass scales, bone saws, medicine bottles and other medical supplies were found near the pelvic bones (fig. 19.2). Two coins were also found in the grave (fig. 19.3). The object in the middle of fig. 19.3 is a spatula. This means that one of the deceased was buried with writing materials. The coin with the female skeleton dates to the time of Emperor Caracalla (AD 211–217), while the coin with the male skeleton is dated to the time of Emperor Severus Alexander (AD 222–235) (figs. 19.4a–b). Therefore, these two individuals are probably related and were most likely buried one after the other at the beginning of the third century AD. The *balsamarium* and the other artefacts should be dated concurrently with the male skeleton.

The material of the *balsamarium* is bronze (figs. 19.6a–b). It was made using a hollow casting technique, in the form

of boar skin. The example has a length of 12.3 cm, a width of 7.1 cm and a height of 5.7 cm. On one side of the oval section of the torso, there are two legs at the front and back. The legs are shaped like extensions from the body to the tip, narrowing towards the tip and ending in a round shape. At the tip of the extensions, there are no fingers or toes. The bottle has a tail that has a similar shape to the legs at the back, short, narrow to the tip and ending in a round shape (fig. 19.7). In the front part, between the rear legs, there is a boss possibly showing the pig's genitalia. The neck is narrow. The head of the animal is designed to form a bottle mouth. There is a hinge piece on the opposite side of the rim portion at the rim. This hinge shows that the container was covered with a lid, which was not found in the grave. There are two 'S' shaped thin bars extending from the shoulder to the rim on both sides of the neck. These bars join transversely to the rim at the top. The lower ends are made in the form of a duck head, which is joined to the shoulder by a pin. On the rods, there is a hanging handle with a square cross section, '□' shaped, with a tip in the form of a knob. The handle position allows the reservoir to be held or hung from above.

The body of the bottle is decorated with grapes, vine leaves and branches in relief. The branches start from the pig's hind legs and spread forward along the ridge. The branches move from the back to the front, knotting on the chest and ending there.

The object is completely solid and in one piece. However, there is a crescent-shaped plate placed around the tail and soldered there. It appears that this addition was not in the original design of the bottle and was added afterwards,

³ Arslan 2014, pp. 13–24; Devecioğlu 2016, pp. 89–112.

⁴ Arslan and Metin 2012, pp. 136–39.

⁵ For excavation reports see Arslan *et al.* 2011, p. 271; Arslan *et al.* 2012, p. 170; For inscriptions and other finds of Iuliopolis: Arslan 2010, pp. 134–40; Arslan 2012, pp. 27–28; Onur 2014a, pp. 65–83; Avcu and Doğan 2014, pp. 85–99; Onur 2014b, pp. 101–13; Devecioğlu 2013, pp. 54–64 and 74–161, pls. 1–19; as well as Devecioğlu 2014, pp. 219–30.



Figure 19.2. The Grave M-174 with *in situ* small finds (by the authors, 2011).



Figure 19.3. All small finds from the Grave M-174 after the conservation (by the authors, 2011).



Figure 19.4a. A coin from the Grave M-174 from era of Caracalla, AD 211-217 (AR *denarius*) (by the authors, 2011).



Figure 19.4b. From the era of Severus Alexander, AD 222-235 (AR *denarius*) (by the authors, 2011).



Figure 19.5. A *balsamarium* from the Grave M-174 *in situ* (by the authors, 2011).

given both its rough form and that it covers some of the decoration. This suggests that the object was repaired in antiquity. However, when the example stands upright, the fact that it stands on this plate with its two rear legs may also suggest that the plate was added later to stabilise the bottle.

This small bottle uncovered from the *necropolis* of Juliopolis is of a type that holds a limited amount of liquid or oil. No similarity was found, in terms of decoration, in previously published examples; other anthropomorphic vessels are only similar with their sizes and function. These containers were made for perfume, olive oil, and balsamic liquids. The ancient names of these vessels, which were very common during the Roman period, are unknown. For

this reason, modern naming conventions sometimes refer to shape (such as bust-shaped containers) and sometimes by the substance it contains (such as *balsamarium*, a container for balsam oil).

The Juliopolis example, although unusual among *balsamarium* specimens due to its boar-shaped form, also shows some similarities on volume and some typological properties. The height of this example is 11.5 cm and thus, it is similar to other anthropomorphic *balsamarii* known in the literature. An example from Stramba in Romania is 12.8 cm;⁶ an example from the National Museum of

⁶ Mustață 2010, pp. 51–53, pl 1, nos. 1a-b.



Figure 19.6. The *balsamarium* after the restoration (by the authors, 2011).



Figure 19.7. The tail part (by the authors, 2011).

Hungary is 11.0 cm;⁷ two further examples from Stralsund in Germany are 11.0 cm.⁸ Some of the *Balsamarium* specimens are retained and others have a chain attached to the two apples on the bottle. In all of these examples, there is a cover to prevent the liquid from spilling. The form of the cover usually varies according to the shape of the mouth of the bottle. In bottles with a symmetrical

circular shape, the lid portion is generally disc-shaped and has a tongue made to engage the groove inside the lip edge of the container to prevent slippage. In the case of non-symmetrical rimmed specimens such as the example from Juliopolis, their lids were prepared in a separate place usually in a casting technique and fixed with the help of a rim hinge.⁹

⁷ Braun 2001, fig. 43.

⁸ Braun 2001, figs. 45 and 46.

⁹ For the first lid type see Braun 2001, p. 9, figs. 8a-b; for the second lid type see Mustățã 2010, pp. 51–53, pl. 1, no. 1a.

The boar-shaped example discussed in this article is a rare example in Anatolia yet in the literature.¹⁰ This so called *balsamarium* is either used for cosmetics, or for medicine to carry oil, balsamic liquids, and is dated to the first half of the third century AD by its context in the *necropolis* of Juliopolis (**fig. 19.5**). Considering the other finds in the grave, it is possible that this example belonged to a set of medical instruments of a doctor.

¹⁰ An example from Perge found in the 1970s has not yet been published and is now in the Antalya Museum. We would like to thank the Director of the Antalya Museum, Mustafa Demirel, for sharing this information with us.

A Bronze Plate or Scabbard with a Representation of Cybele/Magna Mater

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Abstract: In this article, a decorated bronze plate from a private collection in Ankara will be discussed. In the centre part of the front face of the plate is a representation of Cybele/Magna Mater made using the repoussé technique. This Cybele/Magna Mater representation motif, with *phiale*, *tympanon* and lions on either side, is a widely-known image of the goddess on votive and grave steles in Anatolia from the Hellenistic Period onwards, except that kind of bronze plates which is almost unknown. Studies of the object led us to the possibility that it might be an applique decoration from a scabbard.

Keywords: bronze plate, repoussé technique, Cybele/Magna Mater, Roman period, Anatolia.

Özet – Cybele / Magna Mater’in Temsil Edildiği Bronz Bir Plaka / Kın Parçası: Bu makalede, Ankara’daki özel bir koleksiyonda bulunan bronz bir plaka ele alınacaktır. Plakanın, ön yüzünün ortasında repoussé tekniği ile yapılmış bir Cybele/Magna Mater betimlemesi yer almaktadır. *Phiale*, *tympanon* ve her iki tarafta oturan aslanlar ile bu Cybele/Magna Mater betimlemesi, Helenistik Dönem’den itibaren Anadolu’daki adak ve mezar stelleri üzerinde yaygın olarak bilinmektedir. Bununla birlikte burada ele alınacak örnek sahip olduğu form ve kullanım alanı bakımından bu tür bir betimlemenin görüldüğü nadir örneklerden birisidir. Örnekle ilgili çalışmalar bizi, aşağıda tartışılan özellikleri ile plakanın Roma Dönemi kılıç kınına ait bir aplik olabileceği sonucuna götürmüştür.

Anahtar Kelimeler: Bronz levha, kabartma tekniği, Cybele/Magna Mater, Roma Dönemi, Anadolu.

A sheet plate is registered with the acc. no. 478 in the collection of Ms Gaye Çarmıklı, a private collector of archaeological material licensed by Ethnographic Museum of Ankara.¹ It is 13.1 cm in height, 4.8 cm in upper w. and 1.8 cm in lower w. and is made of cutting sheet metal. The backside of the plate, which has a slightly convex profile, is narrow (**figs. 20.1-2**).

The plate is divided into three vertical friezes with horizontally engraved lines over the top and bottom edges of the plate. In the middle section, there are also rectangular areas decorated with S-shaped fill ornamentation made using a pierced openwork technique. These S-shaped ornaments are seen in two rows on the top and two rows on the bottom. The right-side frames of those to the right of

the upper subsequence and those to the right of the lower sequence are broken. The main part of the mid-section is framed by two horizontal incised lines from the top and bottom edges, and two scraping lines from the sides. In the centre of this part is a rectangular space with its upper edges cut into triangles and decorated using repousse technique. This plate, which is 3.4 cm in height and 2.4 cm in width, was made separately and later joined to the larger piece. There is a representation of Cybele/Magna Mater in relief technique on the plate (**fig. 20.3**). The top of the plate is cut into triangular shapes. The edges of this triangular section are not smooth. The left edge is long and the right edge is cut short.

Cybele/Magna Mater with a high *polos* is sitting on a backed throne and has a short-sleeved *peplos* that connects with a thick belt under her chest. The folds of the dress stretches to her feet. The neck of the dress is partially

¹ We would like to thank Ms Gaye Çarmıklı for letting us publish this example in her collection.



Figure 20.1. Front side (by the authors, 2011).

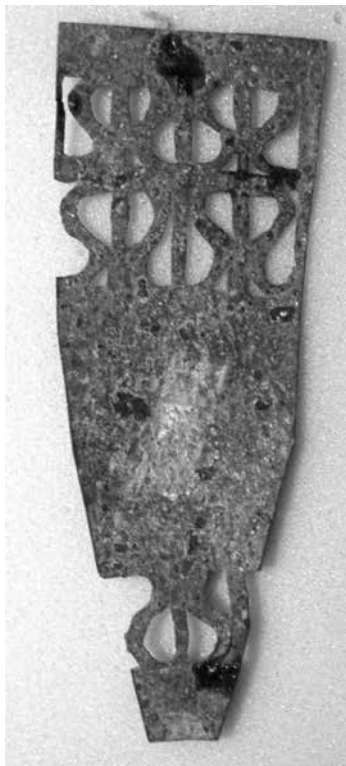


Figure 20.2. Backside (by the authors, 2011).

rounded and V-shaped on the chest. The face of the goddess is damaged, and her hair under the high *polos* descends to the both sides, parted in the middle and covering her ears. A lion crouches on both sides; the standing goddess holds the *phiale* in her right hand and *tympanum* in the left hand.



Figure 20.3. Representation of Cybele/Magna Mater on the front side (by the authors, 2011).

The findspot and context of the plate is unknown. For this reason, it is necessary to consider the object's form, construction technique and ornamentation in order to understand its purpose, function and period of use.

The form of the plate suggests that it may have a special function. The well-finished, shiny, ornamented surface of the front face, and the coarse condition of the rear face show that this plate may have been used as an applique. However, there is no evidence of how the plate would be affixed to another material, as there are no traces of any methods such as soldering, lead or nail fixing which are generally used for the application such plates.

The designs above and in the middle are the most striking part of the plate. The figure of the goddess seen in this part, which is made as a separate piece and later joined to the body, represents a variation of the Mother Goddess cult which is one of the oldest beliefs of Asia Minor.² The Mother Goddess figure sits with two crouching lions, which represent her dominion over animals in general. The *phiale* she holds in her hand is a religious ceremonial vessel used to supply liquids in the Greek world.³ The *tympanon* is an instrument used in religious ceremonies held in honour of the goddess.⁴ This cluster of attributes

² This belief can be seen in Anatolia from the Neolithic period. In the following centuries, there were differences in religious features and belief qualities and began to gain popularity in the Iron Age beyond Anatolia. The Iron Age goddess, the Phrygian Matar Kubileya and the Greek Meter Cybele/Magna Mater. This cult, which reached Rome in 204 BC. during the Punic wars, was referred to here as Magna Mater and respected as the mother of Jupiter and continued to worship in the regions under Rome's sovereignty: Roller 2013.

³ Roller 2013, p. 176.

⁴ With these tools, Roller notes that the goddess has been stripped of the Anatolian features and has become suitable for the Greek goddess concept: Roller 2013, p. 177.

of Cybele/Magna Mater can be seen in different periods in Anatolia from time to time. However, the representation of all of them in one place was first seen in Athens in the sixth century BC.⁵ This motif was the most common way the goddess was represented after the Hellenistic period.

After the Cybele cult was moved to Rome, she was named Magna Mater and was featured in the Roman Pantheon. As Rome took control of the Mediterranean, the Magna Mater cult became increasingly recognisable and widely accepted among the population. During the Roman period this iconographic design was still the most popular form of Cybele/Magna Mater in Athens while undergoing some changes during the Hellenistic period. This composition became very popular in Asia Minor as well, and was more common than other iconographic designs of Cybele. In Central Anatolia, which is the region where the plate could be originated, is one of the regions where the depiction of Cybele/Magna Mater was most widespread during the Roman period. In addition to the numerous votive stele and grave stele that have been found, many Roman coins also show Cybele/Magna Mater and her attributes.⁶

The plate, when taken as a whole, is a unique example of its kind. No exact parallel can be found in previously published research. This example can be regarded in the first place as a part of an item that is applied to a surface in order to, either directly or indirectly, send a religious message. Such representations of Cybele/Magna Mater are widespread among objects from religious and daily life, such as sacred steles, grave steles and rings, in the Roman period.⁷ Thus, our plate may have been part of an object used in daily religious life. However, this does not allow us to define the function of the plate more specifically. For this reason, we compared the form and the size of our plate with similar ones.

The first notable features of the plate we examined were its width, the V-shaped end of its lower part, and the convex form of its body (fig. 20.3). Using these criteria, the closest analogues of the plate were seen among scabbard appliques in the Roman period (fig. 20.4). Similar scabbard appliques can be seen on the Mainz type of *gladius*, a sword type which was used by Roman legionaries since the Early Roman imperial period.⁸ After this period similar types of decoration can be seen among the various sword types of the Roman period, such as the *gladius* and the

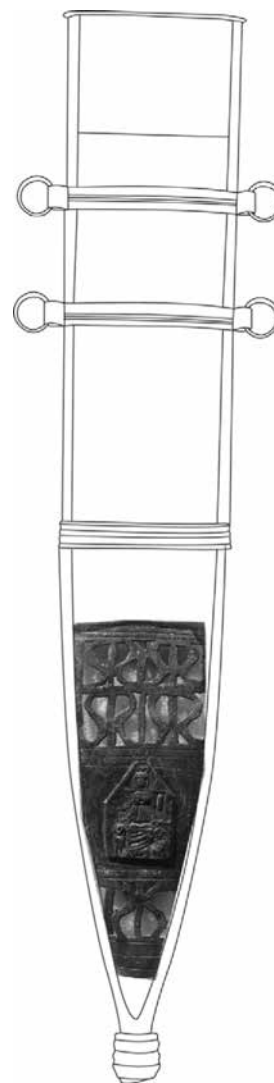


Figure 20.4. Reconstruction of the plate on the scabbard (by the authors, 2011).

spatha.⁹ It is seen that these appliqué plates are usually placed on the outer side of scabbards, which were made of wood and secured with metal parts covered with leather. The applique plates are clamped between the leather on the wood and the metal frame. For this reason, the plate form should generally match the external form of the sword. The V-shaped section in the lower half of the bronze plate in Çarmıklı's collection should belong to the lower part of the sheath. Unfortunately, we do not have the data to determine to which type of sword the plate belongs. The width and the V-shaped portion are closer to the *gladius* type swords in terms of their size.¹⁰

The plate-cutting and embossing techniques used the outer surface of the scabbard applique, which was used

⁵ See Roller 2013, p. 173: The most important example of this representation in Athens is the statue in the Metroon in the Athens Agora, made by Agorakritos, a student of Pheidias, according to written sources. See Plinius NH. 36.17; Pausanias 1.3.5; Arrian Periplus 9, This statue is not available today. But it has created a model for many small copies made as votive.

⁶ Examples of the representation of Cybele/Magna Mater on the coin with the same attribute is: Arslan 1990, pp. 144–75 (Plotina coin: Cotiaemum mint Emp. Traian); Arslan 2006, pp. 125–81 (Pessinus mint: without lions, Emp Geta); as well as Arslan 2004, no. B108 (Ancyra mint: Imp Valerian), nos. 190–192 (Ancyra mint: Emp. Gallienus).

⁷ For variations of iconographical schemes of Cybele/Magna Mater: Naumann 1983; as well as Vermaseren 1977.

⁸ Bishop and Coulston 2006, pp. 81–82, fig. 41; Bishop 2016, p. 14.

⁹ For sword types and their decorations of Roman period in general: Feugère 2002; Bishop and Coulston 2006; Miks 2007; as well as Bishop 2016.

¹⁰ *Gladius* type swords can vary in size and have knife w. between 4 and 5.5 cm It can be said that the pl. examined is suitable for covering with 4.8 cm w. and dimensions: Connolly 1997, pp. 41–57; as well as Bishop 2016.



Figure 20.5. The sword of Tiberius ca. 15 BC. (by the authors, 2011 through the courtesy of The British Museum).

to produce the Cybele/Magna Mater representation on the plate, is not a common technique seen on Roman swords. These methods can be seen in the Mainz type of *gladius* from the first century BC. onwards.¹¹

Although the form of the plate has parallels in literature, it is not possible to say the same for the motif on it. As mentioned above, the figure of the goddess sitting on a

throne with lions crouching on both sides, holding a *phiale* and a *tympanum* in one hand, is widespread on objects from religious and daily life. However, such a depiction has not yet been found on a sword plate from the Roman era. The decorated examples of Roman military swords generally have representations of empire propaganda: there are many examples of these, especially from the northern border of the empire.¹²

However, in Anatolia there are very few examples of Roman military swords, and therefore it is not possible to say something about their decoration schemes. Thus, although it is possible to say the plate from Ms Çarmıklı's collection is a scabbard piece, there is still insufficient data available to make an assessment as to where it may have been produced and under which classification it should be placed.

¹¹ Bishop 2016, p. 14.

¹² One of the most comprehensive studies on this subject was done by Miks: Miks 2007. Unfortunately, this issue was not reached during the preparation of this study. However, during a conversation to him, Miks rightly stated that the example might be scabbard piece, but may not belong to military equipment. He stated that it might have also been used in the religious ceremonies because of the decoration on it. We are grateful for her contribution.

An Attis Figurine from Ancyra in Galatia (Central Turkey)

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Abstract: The small winged bronze Attis statuette, which is currently on display at the Museum of Anatolian Civilisations in Ankara, was recovered during the 2009 excavations at the Roman bath in Ankara. This figurine is shown in a standing position with his left hand touching his lower back, while his right arm extends downwards away from his body, and his head turned slightly to the right. He wears a Phrygian cap, and an oriental garment of two parts. Attis, the young man beloved of the goddess Cybele, is a native Anatolian myth and iconographically he is known by few statuettes from Asia Minor. The purpose and function of this figurine is not clear, however, we propose that it was used as a cult figurine and date it to the second century AD.

Keywords: Bronze, figurine, Attis, Phrygia, Anatolia.

Özet – Ankyra’dan bir Attis Figürini: Şu anda Ankara Anadolu Medeniyetleri Müzesi’nde sergilenmekte olan küçük kanatlı bronz Attis heykelciği, Ankara Roma hamamında 2009 yılında yürütülen kazılarda ele geçmiştir. Ayakta durur vaziyette tasvir edilen bu heykelcik, sol eliyle beline dokunurken, sağ kolu ise vücudundan aşağı doğru uzanmaktadır ve başı hafif sağa dönüktür. Bir Phryg başlığı takmış ve üzerinde iki parçadan oluşan bir doğu giysisi giymektedir. Tanrıça Cybele’nin sevdiği genç adam Attis, yerli Anadolu mitosudur ve Anadolu’dan çok az analogik heykelcik ile temsil edilmektedir. Kullanım amacı ve işlevi açık değilse de bir kült heykelciği olarak kullanılmış olabileceği ve İ.S. 2. yy.’a tarihlendirilmesi önerilecektir.

Anahtar Kelimeler: Bronz, figürin, Attis, Phrygia, Anadolu.

The bronze figurine presented here was found in the excavations of section 1 E in the Roman baths of Ancyra in the Çankırı Street in modern Ankara in 2009¹ and is exhibited in the Ankara section of the Museum of Anatolian Civilisations (acc. no. 1–3–10) (fig. 21.1).

Description

This rare figurine (h. 12.3 cm; w. of shoulders 2.8 cm; max. w. 4.7 cm) is in a single piece and is well preserved. The figure stood on a (probably round) base which is now lost: traces of welding and of wear are visible on the bottom of the feet.

The statuette shows Attis, with small wings, standing; and with his head turned slightly to the right. Under his headpiece, a Phrygian cap which extends to his shoulders, his curly hair descends to his neck. His round and childish face display his youth. His left hand touches his waist at his back, while his right arm extends downwards away from his

body; the four fingers of this right hand are held together, and his thumb is turned down. His right leg crosses his left leg, his heels are raised and he stands on his toes.

Attis is dressed in an oriental garment of two parts, of which the main component is a long-sleeved *anaxyrides* similar to overalls,² which expose the genitals and are open at the sides. Below the groin, this thin garment seems to descend like trousers covering his legs as far as his ankles, although it is not possible to be certain about this. Inside this outer garment is an inner tunic,³ rendered by a V-shaped collar. This *chitoniskos* and the main *anaxyrides* are tightly held just below the chest by a belt tied in a knot. At the back of the statuette, the clothing is not indicated clearly, except the extended part of the main garment open at its sides (figs. 21.1a-b, e). It seems that Attis wears long boots which rise to his knees. Below the kneecaps on both

¹ For more information about the 2009 excavations: Arslan, Akalın and Talakar 2011, pp. 341–62.

² For the Persian trousers called *anaxyrides* (ἀναξυρίδες; *anaxyrides*) worn by Scythians, Persians and neighbouring peoples: Hdt. 7.61ff; and also *RE* I 1894, p. 2100ff Anaxuride V (Mau); Von Graeve 1970, p. 95s ff.; as well as Kühnel (ed.) 1992, p. 9 ff.

³ For the short inner garment worn by men called *chitoniskos*: Brein 1992, p. 50ff; Lane (ed.) 1996, pp. 40–432; Vermaseren 1997; Vermaseren 1987.

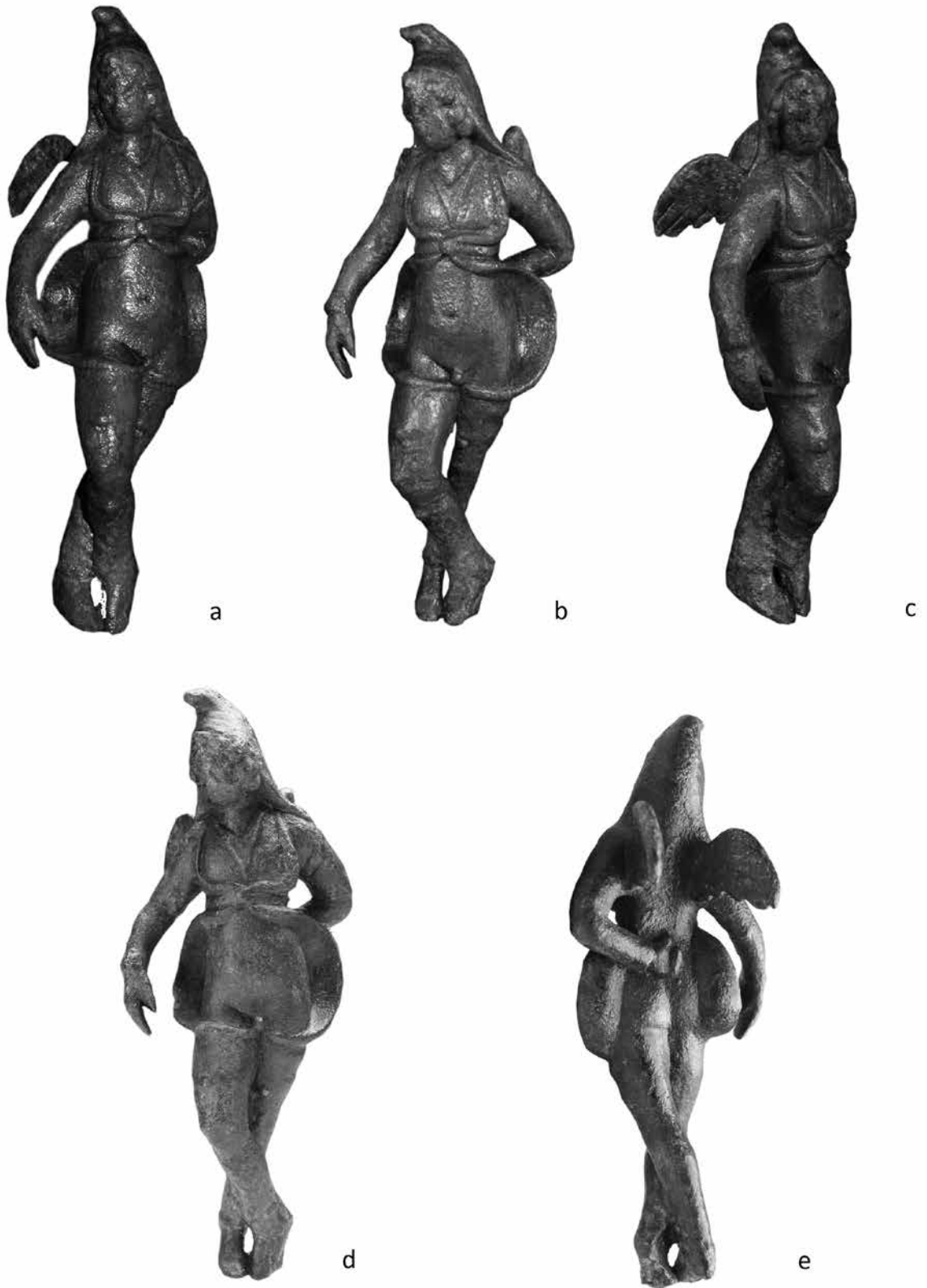


Figure 21.1a-e. A bronze Attis figurine from Ancyra (by M. Arslan, 2011).

legs are ring-shaped protuberances which look like the tops of boots (figs. 21.1a-b).

Iconography

The representations of Attis in eastern garments naked at the waist, though not explicitly described in ancient sources, are designated by the modern term of Attis Castratus.⁴ Contrary to the *communis opinio* that the *castratus* type represents Attis as a eunuch,⁵ he is very often represented as not castrated, with his genitals exposed.⁶ Since all the examples of the *castratus* type do not show Attis as really castrated, this type of representation may have been used instead to emphasise his passive nature, as is depicted in mythology.⁷ This interpretation is supported by Attis' generally feminine face and style of body.⁸

Although most examples of the Attis Castratus type show his hands tied behind his back, the left hand of the Attis statuette at Ankara rests on his waist, while his open right hand is free (fig. 21.1e). The nearest parallels are a marble statue in the Museum of Alanya,⁹ an Attis figure in relief on a funerary chest in the Museum of Side,¹⁰ and a relief found in Cyzicus, now in the Archaeological Museums of Istanbul.¹¹ On this high relief from Cyzicus Attis is standing, leaning against a column. Winged, wearing a Phrygian cap and a long *chiton*, Attis has bare legs, his right leg a little in front of his left. As on our figurine, his garment, which reaches to his ankles with oblique folds, is open in an oval form at front and sides. Both hands are on his waist at his back. His long hair falls from his Phrygian cap to his shoulders in two curls. His pleated one-piece garment, with a V-shaped collar and thick hems, is held in place by a large button above his chest. Also, a small terracotta figurine of Attis from Myrina is very similar to our bronze figurine.¹² A similar figurine of Attis dating to the Roman imperial period was recovered from the Roman House in the North Tower of Laodicea on the Lycus. Even though there are size or stylistic similarities with the Attis of Laodicea, our Attis has his left arm up and his right arm on the side, as if he was dancing.¹³

Attis, the young man beloved of the goddess Cybele, is a native Anatolian myth, represented on many works of art. Once part of Phrygia, the city of Ancyra has produced this bronze figurine unlike any others found in central Anatolia. We consider that it was used as a cult statuette and date it to the second century AD.

⁴ The type of representation was first identified by Karwiese who divided it into four groups: Karwiese 1967, p. 227 ff. In these groups Attis is represented in different ways, with hands tied or as he is shown here.

⁵ Baydur 1998, p. 110.

⁶ For examples of Attis with his genitals exposed: Karwiese 1967, nos. 138, 141–142, 347–349, 351 and 353.

⁷ Vermaseren 1966, p. 2; as well as Karwiese 1967, p. 190.

⁸ For the customary effeminate depictions: Karwiese 1967, p. 22; as well as Vermaseren 1977, p. 95.

⁹ Korkut 2000, pp. 171–78, pls. 1a-c.

¹⁰ Korkut 2000, p. 178, pl. 2.

¹¹ Vermaseren 1987, p. 91, nos. 280–281; p. 93, no. 284.

¹² Vermaseren 1987, p. 150, no. 495.

¹³ Şimşek 2007, p. 110, fig. 45.

Two Metal Plaques with Artemis Potnia Theron from Ankara

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Abstract: Two artefacts in this study, are in the collection of a special collector Ms Gaye Çarmıklı in Ankara. On both metal artefacts, Artemis Potnia Theron relief is the common feature of the artefacts. Artemis Potnia Theron, depicted in the Roman period, is depicted on the silver, holding the wild animals with repoussé, standing on the front, wearing *peplos*, holding *polos* on his head, and standing by both hands. Artemis Potnia Theron on bronze votive plate made with casting technique is depicted at the entrance of an antis temple. The short-sleeved *peplos* holds the wild beasts standing next to him by the goddess, dressed in *polos* and a long turban. From these artefacts we learned that the silver plate came from around Fethiye (Lycia and Caria) and we searched the places where the works in this work could have been used in Anatolia. We tried to identify the origins of the Artemis Potnia Theron cult in the Mediterranean environment and its presence in the light of epigraphic documents found and published in this cult especially in the Roman period, Caria, Lycia and Pisidia regions. We have seen that goddess has not been described as Artemis Potnia Theron in any archaeological work until now. These two artefacts, painted by Artemis Potnia Theron from the Roman Period, are an important document in terms of proving the existence of this cult in Anatolia. From these works, we have suggested where and for what purpose the silver plate could be used. Although Artemis Potnia Theron has a long history, we have tried to explain that the archaeological evidence of this cult has continued to live in other titles in the Mediterranean and Anatolia. Since the representation of Artemis Potnia Theron on the two metal works we have published here is a work of art in the classical tradition, we have offered new views and approaches for the construction techniques, functions and iconographic features of these two artefacts.

Keywords: Votive plate, repoussé, Artemis Potnia Theron, Rhodes, Lycia, Caria, Pisidia, Artemis altar of Limyra, Artemis statue at Caunus.

Özet –Artemis Potnia Theron ile İki Metal Levha: Bu çalışmaya konu olan iki eser, Ankara’da özel bir koleksiyoner Sayın Gaye Çarmıklı’nın koleksiyonunda yer almaktadır. Her iki metal eser üzerinde, Artemis Potnia Theron kabartması olması, eserlerin ortak özelliğidir. Roma Dönemi’ne tarihlediğimiz bu eserlerden gümüş olanı üzerinde kabartma tekniği (repoussé) ile yapılmış, ayakta cepheden duran, *peplos* giymiş, başında *polos* taşıyan ve her iki eliyle yanında duran vahşi hayvanları tutan Artemis Potnia Theron betimlenmiştir. Döküm tekniği ile yapılmış bronz adak levhası üzerindeki Artemis Potnia Theron ise, in antis bir tapınak girişinde tasvir edilmiştir. Kısa kollu *peplos*, başında *polos* ve uzun bir türban giymiş olan tanrıça yanında duran vahşi hayvanları eliyle başından tutmaktadır. Bu eserlerden gümüş plakanın Fethiye civarından (Lykia ve Karia) gelmiş olduğunu öğrenmemiz üzerine, bu çalışmadaki eserlerin Anadolu’da kullanılmış olabileceği yerleri araştırdık. Artemis Potnia Theron kültürünün Akdeniz çevresindeki kökenlerini ve bu kültürün özellikle Roma Dönemi’nde, Karia, Lykia ve Pisidia Bölgeleri’nde ele geçmiş ve yayınlanmış epigrafik belgeler ışığında varlığını tespit etmeye çalıştık. Tanrıçanın, şimdiye kadar hiçbir arkeolojik eserde, Artemis Potnia Theron olarak tanımlanmadığını gördük. Roma Dönemi’nden, Artemis Potnia Theron kabartmalı bu iki eser, Anadolu’da bu kültürün varlığını kanıtlaması açısından önemli bir belge değeri taşımaktadır. Söz konusu eserlerden gümüş plakanın nerede ve ne için kullanılmış olabileceği konusunda önerilerimiz olmuştur. Artemis Potnia Theron inancının geçmişi çok eskiye dayanmakla beraber, bu kültürün arkeolojik

kanıtlarının Akdeniz dünyasında ve Anadolu'da başka sıfatlarla yaşamını devam ettirdiğini izah etmeye çalıştık. Burada yayınladığımız iki metal eser üzerinde görülen Artemis Potnia Theron tasvirinin klasik gelenekte işlenmiş bir Roma eseri olması nedeniyle bu iki eserin yapım teknikleri, işlevleri ve ikonografik özellikleri için yeni görüşler ve yaklaşımlar sunmaya çalışılmıştır.

Anahtar Kelimeler: Adak levhası, kabartma tekniği, Artemis Potnia Theron, Rodos, Lykia, Karia, Pisidia, Limyra Artemis sunağı, Kaunos Artemis heykelciği.

The two artefacts discussed in this article are in the collection of Gaye Çarmıklı, a collector registered with the Ethnographical Museum of Ankara.¹

One of the objects is silver, the other one is bronze, and both are decorated with reliefs of the goddess who protected wild animals, Artemis Potnia Theron (pls. 1–3). These artefacts are especially valuable because the iconography of Anatolian Artemis encountered on these two pieces is very unusual.

At first sight, the standing female figure, shown from the front fully clothed and wearing a *polos* on her head, appears to resemble Cybele.² But a further detailed study of the artefacts indicates that these are representations of the goddess Artemis Potnia Theron, who is another reflection of Cybele in Anatolia.

Artemis, the twin of Apollo and the daughter of Zeus and Leto in ancient Greek mythology, was recognised and worshipped among the twelve gods in the Greek pantheon.

Artemis, like other gods and goddesses, was a deity with extensive power and influence. Due to her versatility, she was revered almost everywhere in antiquity and worshipped with different titles. The description Potnia Theron was highlighted for the first time by the poet Homer,³ and is considered to be one of the oldest and most common attributes of the goddess.⁴

Artemis' title Potnia Theron (mistress of wild animals) derives from Crete's prehellenic goddess of Nature and Fertility, known to modern scholars simply as Potnia Theron.⁵

The origin of this goddess of Nature and Fertility who emerged in Crete and Mycenae descended from the cultures of Egypt, Mesopotamia, and Ancient Anatolia. We find the deity named as Inanna in Sumer, Ishtar in Assur, Adat-Hepat in Hittite art, and Astarte in Phoenicia.⁶

In Sparta in Greece, a goddess, shown with lions, was worshipped as Artemis Orthia since the end of the eighth century BC. There were also a sanctuary and a temple at Sparta for Artemis Orthia.⁷

As well as many other epithets of Artemis, the title Potnia Theron ('=Mistress of wild animals') particularly emphasised her characteristics as a goddess of Nature, and links her to prehellenic nature goddesses such as Rhea in the Cretan-Minoan civilisation, the Nature and Fertility goddesses of the ancient Near East, and the Anatolian Mother of All Gods, Cybele. The title Potnia Theron provides continuity with Anatolia's great Goddess of Fertility (Mother Goddess), who can be recognised in iconographic art and cultic spaces at Çatalhöyük; the title is also closely associated with the characteristics of Artemis Ephesia, attested in its original cult centre at Ephesus since the Archaic Period, and which was revered and worshipped in various regions inside and outside Anatolia. Although Artemis with the 'Potnia Theron' title is considered to represent a very old and deep-rooted tradition in the eastern Mediterranean-Aegean regions, and was revered in many parts of the Hellenic world, there is a view that her cult is not very common in Anatolia.⁸

In archaeological finds, depictions of Artemis as Potnia Theron are present from the end of the eighth century BC. From the seventh century to the fourth century the goddess is sometimes shown as winged, sometimes wingless. The goddess was depicted frontally in the eighth century, and begins to be depicted in profile in the seventh century BC. She appears especially on gems, vase paintings, terracotta reliefs, and ivory or metal plaques. The goddess wears a *peplos*, tunic or long *chiton* from the Archaic period. In the earliest examples in vase paintings, her head is usually bare, but she often wears a *polos* (sometimes decorated with rosettes). The hair is in layers, in daedalic style, and extends to the shoulder, as may be seen in the kore statues. Most importantly, one or more wild animals invariably accompany the goddess. These animals are lions, panthers, birds, fish and especially deer, which are the particular sacred animal of the goddess. Animals sometimes stand alone⁹ beside the goddess, but usually the goddess holds them in either hand by their necks, heads, fore legs or hind legs.¹⁰

¹ We are deeply grateful to Ms. Gaye Çarmıklı who allowed us to publish these two pieces from her collection, we also offer our gratitude to Professor Taner Korkut who shared his opinions and help about these two finds.

² These depictions on the artefacts are described as Cybele in the inventory book.

³ Hom. II.21.470.

⁴ For epithets of Artemis: Wernicke 1896, pp. 1336–440; as well as Kahil 1984, pp. 623–753.

⁵ Picard 1948, pp. 77–78; as well as Çelgin 1986, p. 24.

⁶ Christou 1968, p. 143.

⁷ Christou, pp. 28–36.

⁸ Çelgin 2002, p. 128.

⁹ LIMC II.2, nos. 11, 13, 16, 21 and also 47.

¹⁰ LIMC II.2, no. 17, 22–23, 29–30, 32–35, 37, 40–41, 42, 45, 50, 53, 56 and also 64.

The epithet Potnia Theron, first used by Homer, is considered to be one of the oldest and commonest aspects of the goddess.¹¹ Epigraphic evidence also confirms that since Artemis had features that she shared with other gods and goddesses, their names were also used as her epithets, and she was worshipped with these names.¹² Some Artemis cults are also known to exist in Anatolia under different epithets.¹³ However, the number of their iconographic representations is very few. The contradiction probably arises from the fact that the concept of Artemis in western Anatolia is inherently different from that of Artemis in the rest of the eastern Mediterranean. In no part of the Mediterranean world was Artemis so intensively worshipped as in Anatolia. This is due to her close resemblance to Cybele, the Anatolian goddess of nature and fertility, whose cult extended from prehistoric times.¹⁴ References to the mother goddess as Artemis in the Early Archaic period in Ionia is also explained by the similarity between Artemis and Cybele.¹⁵ Under the influence of this development, local cults were created by adding different city names to her name, and she began to be worshipped as Artemis Ephesia, Artemis Pergaia or Artemis Sardiane. It is also known from epigraphic evidence that these cults were extended over time to other regions. For instance, the cults of Artemis Pergaia and Artemis Eleuthera occur in Limyra, and Artemis Ephesia is attested in Termessos. Although a nominal richness is observed in the cults of Artemis, it is easily understood from the iconographical similarities that the deities who were worshipped were actually the same goddess.¹⁶

Epigraphic research in recent years, especially in Lycia and Pamphylia, has led to the discovery of new inscriptions from the Roman period referring to Artemis Potnia Theron. The most important of these is a grave inscription mentioning this title of the goddess, which was found at Termessos and published by Professor Vedat Çelgin.¹⁷ In two separate papers titled 'Artemis Cults in the Termessos Territory I and II', Professor Çelgin mentions that they found inscriptions with the titles of Artemis Kelbessis¹⁸ and Aspalos-Akraia in Termessos Territory, and the inscriptions mention cult areas and the presence of their temples in the region.¹⁹ In addition, newly found inscriptions and votive altars in Lycia have provided evidence for a cult of Artemis Kombike, a new title for the goddess.²⁰

Among the Limyra finds, a terracotta figurine carrying a fawn in her lap,²¹ dated to the fourth century BC., has been

identified as Artemis. We think that this figurine carrying a wild animal and wearing a *polos* should be identified specifically as Potnia Theron. Moreover, in the inscriptions on the altar finds of Roman period Limyra, we see Artemis linked with the titles Pergaia, Eleuthera, and Thausica.²² One of these finds is very important to this discussion. This is a relief of Artemis wearing a *polos* and a veil on a limestone altar from the Roman period.²³ This Artemis relief is very similar to the bronze votive plaque in the Çarmıklı Collection. This Artemis relief on the Limyra altar with the veil and *polos* is broken and missing below her waist. For this reason, it is not known what she holds in her hands, which hang down close to her body.

An extension of the Ephesus Artemis cult, which is a continuation of the mother goddess tradition of Anatolia, occurs in the ancient city of Caunus in Caria. During the excavations in the sanctuary of Apollo in Caunus, a limestone statue of the goddess, 55 cm high, was found on the floor of the sanctuary and is exhibited in the Museum of Fethiye.²⁴ This statuette is in the style of the Artemis Ephesia or Artemis Pergaia cult statue. The body has a rectangular shape and the arms and legs are unsculpted (Hermian form).²⁵ Although this Artemis statuette of the Roman period has been identified as Cybele of Caunus by the head of the excavation, it has the characteristics of the Ephesus Artemis type. The goddess is shown dressed and has a *polos* and veil on her head. There are various animal, human, god and goddess reliefs on her rectangular 'body'. The presence of the deer protomes, two donkeys (or goats?) and scorpion figures on the body of Caunus Artemis should be seen as a reflection of the tradition of Potnia Theron. The statuette also has two round medallions (necklace ornaments) attached to a thick chain ring, suggesting that this silver plate may have been worn around the neck of the Artemis priestesses. In addition, the depiction of the running winged woman seen on the obverse of Caunus' early silver coins (490–410 BC.)²⁶ may have been inspired by the winged Artemis Potnia Theron depictions in finds from Rhodes-Kamiroi,²⁷ which first occur in the last quarter of the seventh century BC. Caunus is located very close to Rhodes and during the Hellenistic period, Caunus and its environs were part of the territory of Rhodes. For these reasons, we conclude that there was a cult of Artemis Potnia Theron also in Caunus.

As part of this brief survey of the Artemis Potnia Theron cult, we have argued that it was particularly prominent in Anatolia, especially in Caria, Lycia and Pisidia. In fact the two artefacts we will discuss were found in Anatolia, and we have learned that the silver plaque was acquired for the collection in Fethiye in Lycia. This may be the region where these artefacts were found, produced or used.

¹¹ For epithets of Artemis: Wernicke 1896, pp. 1336–440; as well as Kahil 1984, pp. 623–753.

¹² Çelgin 2003b, p. 146.

¹³ Çelgin 2001–2002, pp. 124–25.

¹⁴ Naumann 1983, p. 101; Çelgin 2002, p. 125.

¹⁵ Naumann 1983, pp. 101–109.

¹⁶ Korkut 2008, pp. 727–28.

¹⁷ Çelgin 2002, pp. 123–28.

¹⁸ Çelgin 2003a, pp. 119–40.

¹⁹ Çelgin 2003b, pp. 141–70.

²⁰ Korkut 2008, pp. 727–34.

²¹ Borchhardt *et al.* 1990, p. 131, no. 20.

²² Borchhardt *et al.* 1990, pp. 132–33, nos. 22–24.

²³ Borchhardt *et al.* 1990, p. 133, no. 25.

²⁴ Ögün-Işık *et al.* 2002, pp. 109–10, no. 79.

²⁵ Ögün-Işık *et al.* 2002, pp. 109–10, no. 79 (Cybele of Caunus).

²⁶ Westermark and Ashton 1994, nos. 810–827; as well as Konuk 1998, pp. 197–223, nos. 47–50.

²⁷ *LIMC* II.1, p. 627, nos. 39–41.

Depictions of the goddess Potnia Theron have not yet been found in Anatolian archaeological finds from the Roman imperial period, but the name of Artemis Potnia Theron occurs in inscriptions from Pisidia at this time. This evidence that the cult was recognised in western Anatolia in the Roman period supports the argument that the two artefacts we publish here should be dated to the Roman period.

1. Silver plaque: This silver plaque, which is registered with the acc. no. 561, is 9.5 cm in height and 4.8 cm wide. The height of the figure is 8.5 cm. On the front face, the standing Artemis Potnia Theron is depicted in relief technique (*repoussé*) (pls. 22.1a-b). The silver plaque, which narrows from bottom to top in an elliptical shape, is made of a two-layer plates. The flat rear plate is relatively thick compared to the front plate with the relief. The front piece is folded at its edges and riveted to the rear plate (pl. 22.1a). At the same time, the thick sheet on the back side also protects the relief figure on the front side. The round holes of the rivet prints are easily visible on the two edges of the plate forming the rear part.

There are also six staple holes on the back of the plate, a little way in from the upper edge, three on the right and three on the left (pl. 22.2). The prints of these staple holes extend to the front face (pl. 22.1a). We think that the staple holes are pinholes that can be used to attach the object to an article of clothing. It is most likely that these holes are the marks that *fibula* needles are attached to. The plaque, which is very light, may have hung round the wearer's neck by passing wires and threads through these holes. The deep hole at the bottom, which extends to the front face, is likely to have opened up in the following years, due to the breakage of the upper needles over time. It is unsurprising that the needles for attaching the plaque to the dress cannot be found today, as a soft and fragile metal such as silver would not survive in its original condition.

When we examine the plaque in detail, cracks and missing parts can be seen on the front and rear plates. It has been determined that the right and left lower corners of the front plate are broken and missing. A deep, long crack extending horizontally across the neck of the Artemis figure is immediately noticeable. In addition, there are two horizontal cracks, one on the right elbow of the goddess and one at the fingertips of the hand (pls. 22.1a-b). These cracks on the front plate indicate that the plaque was filled with resin or a pitch-like substance between the two plates. This practice is one of the oldest techniques used throughout the history of jewellery in the relief technique (*repoussé*). The overall condition of the artefact is not very good, but all the details of Artemis Potnia Theron relief are visible on this plaque.

On this plaque, Artemis Potnia Theron is shown standing from the front. The goddess has put her right foot a little forward and her left leg carries her body weight. The lines of her face are recognisable except of the nose and forehead. She wears a turreted crown (*polos*) on her head

that is not very high; her hair is divided into two parts on her forehead and extends to her shoulders, covering her ears. Right-angled waves of her hair are clearer on the left cheek. The goddess wears a short-sleeved *peplos*, the pleats of which extend to her knees with thick folds. From the knees, the thick curves of her dress descend to cover the feet and show the legs underneath the dress. This creates the impression that the goddess is wearing the *peplos* over the *chiton*. The goddess is posed with the right foot slightly ahead, the left foot bent back from the knee, with both arms extending down and holding two animals (possibly female deer) in her hands. The animal's head under the left hand is clearer. The animal's body below the right hand has been destroyed by the break but the head is still visible (pls. 22.1b).

We think that the silver plaque was intended to be attached to clothes or worn as an amulet hanging round the neck of the priestess serving in the goddess's temple. Similar Archaic period silver and gold jewellery with Potnia Theron reliefs, found in the *necropolis* of Rhodes-Kamiroi, was used in this way.²⁸ These finds from Rhodes-Kamiroi, now in the British Museum and the Paris-Louvre Museum and dated from 640 to 620 BC., were worn as necklaces and depicted the Goddess as winged. A very similar example to our silver plaque was found in Mesembria near Thessaloniki.²⁹ The Mesembria silver plaque, made of two layers of thin plate with the same technique as our plaque, shows the goddess Cybele, sitting on a throne in a *naiskos* accompanied by lions, as well as Hermes, a female figure carrying a torch, and two other figures. But the closest to our Potnia Theron depiction is the Artemis Potnia Theron relief on a small Hellenistic marble altar found in Rhodes, currently in the Museum of Rhodes acc. no. 13643.³⁰ Artemis is depicted from the front, standing, with a high polos on her head, her long hair extending to her shoulders, wearing a short-sleeved and belted *peplos*, and holding lions by both hands from their front legs.³¹ The relief on this Rhodian marble altar is iconographically very similar to our silver plaque. It is plausible to suggest that the origin of our silver plaque was Lycia, Pisidia or Rhodes, because we know that the silver plaque was obtained from the region of Fethiye (Muğla province, Lycia). The Potnia Theron cult is known in Rhodes from the Archaic period, and from the third to the first century BC., the shores of Lycia and Caria, including Fethiye, were under Rhodes' control. The Caunus Artemis from the Roman period at the Museum of Fethiye, as well as displaying Potnia Theron features with wild animal reliefs on her body, also attracts our attention by the large, round metal plates hanging from her neck and carried on her breast, which provide clues about how our silver plaque was used. It is highly probable that the silver plaque depicting Artemis Potnia Theron is of Caunian origin.

²⁸ LIMC II.2, 446, nos. 39–41; BMC Jewellery, pl. 11, nos. 1126, 1128–1130 and 1132; as well as Higgins 1980, pls. 19D-E, pls. 20 C-E-F.

²⁹ Naumann 1983, fig. 31.2, no. 442.

³⁰ LIMC II.1, p. 629, no. 64.

³¹ LIMC II.2, p. 447, Artemis 64.

The goddess on the silver plaque necklace, despite its ideal classical posture, is an object that must have been made during the Hadrianic period in the first half of the second century AD.

2. Bronze votive plaque: Rectangular shaped, bronze votive plaque, registered with the acc. no. 731. It is 9.4 cm in height and 4.7 cm wide (pls. 22.3-4). The thickness of the plate is 4 mm.

This artefact is a cast which was prepared in one piece in a mould; the back surface was left flat (pl. 22.4). Terracotta examples of this type are also recorded. Some of these have been found in the Xanthus excavations but have not yet been published, so we do not know which figures are on these terracotta plates. These kinds of plaques are usually made as votives for temples and cult centres and were left as offerings in sanctuaries, and even in tombs. Four examples of bronze moulds of unknown provenance, showing these votive reliefs, are in the Metropolitan Museum of Art.³² They are attributed to Anatolia, most probably Ionia.³³

The goddess on the bronze votive plaque is depicted at the entrance of a temple with two columns (*in antis*) below a triangular pediment. The upper half of both columns is fluted, and they have stylized capitals and bases. The entrance to the temple or the niche is slightly arched and decorated in the form of a dentil. There are garland reliefs in the middle of the pediments and palmette-shaped acroteria in the corners (pl. 22.3a).

The goddess places her weight on her left leg and her right leg is extended a little forward. She is wearing a *peplos* with long sleeves, belted below the breast, and her dress has V-shaped folds on the breast and thick pleats hanging down from the waist. Her legs are roughly visible beneath the thick pleats. The goddess's mouth, nose and eyes are worn. She wears a high *polos* on top of her head and her hair is wrapped around her head over her forehead in long braids like a wreath. She wears a *himation* covering her head under the *polos* and hanging down to her hands. In each hand she holds stylised animals, which may be rabbits or doe like animals (pl. 22.3b). The *polos* on the goddess's head, the veil underneath it, and the animals next to her are the best indication of her identification as Potnia Theron.

Examples of the goddess holding stylised deer are often seen in the early depictions of Artemis from Ephesus, and particularly in coins³⁴ and gems³⁵ from the Roman Ephesus. There are similarities with the depiction of Artemis with veil and *polos* on the limestone altar relief from Limyra

in Lycia.³⁶ Since the altar relief, identified as Artemis, is broken below the waist, it is difficult to know if she was holding wild animals in her hands. It has been suggested that this goddess with veil and *polos*, dated to the Roman period, was possibly Artemis Eleuthera. According to us, it is also possible that the Artemis on the limestone altar relief is Potnia Theron.

Examples of bronze votive plates depicting gods and goddesses in a *naiskos* served as temple and tomb offerings in the Roman period. Terracotta examples of these bronze plates, which are familiar from many examples in the world's museums³⁷ and in Turkish museum collections,³⁸ are also reported but not yet published from Xanthus.³⁹ Within all these well-known examples, there are no Potnia Theron depictions among them. In the light of known and published bronze votive plates, we suggest dating the votive plaque here between the second and third centuries AD.

These two artefacts from the Roman period with reliefs of Artemis Potnia Theron are important, as they attest the existence of this cult in Anatolia. In addition to the suggestions we have made about where and how the silver plaque might have been used, we hope to see more proposals for the use of such plaques after this publication. The Artemis Potnia Theron cult was based on a very old tradition, and according to archaeological evidence it continued in the Mediterranean world and in Anatolia using other titles and epithets. The Artemis Potnia Theron depictions on the two metal finds we have published here are Roman artefacts which continued this classical tradition. These finds are reflections of the continuation of the ancient tradition in Anatolia.

³² Roller 2013, pp. 210–11, figs. 58–59.

³³ Roller 2013, p. 212.

³⁴ For the cult statue of Artemis: Burnett, Amandry and Ripollès 1992, no. 2592 (Augustus), 2613–2618 (Tiberius), 2620–2621 (Claudius); Burnett, Amandry and Carradice 1999, p. 167, nos. 1066–1067 (Vespasian) and 1070 (Domitian).

³⁵ Spier 1992, p. 131, nos. 353–355.

³⁶ Borchardt *et al.* 1990, p. 133, no. 25.

³⁷ Eisenberg 2009, p. 36, no. 62 (with Hephaistus' depiction), no. 63 (with Heracles depiction).

³⁸ Bilgi 2004, no. 143 (Archaeological Museums of Istanbul acc. no. 73.325, from Keşan-Edirne) a votive plaque with a depiction of a naked youth making a libation at the entrance of an *in antis* Temple.

³⁹ Recently found in the Xanthus excavations.



22.1a

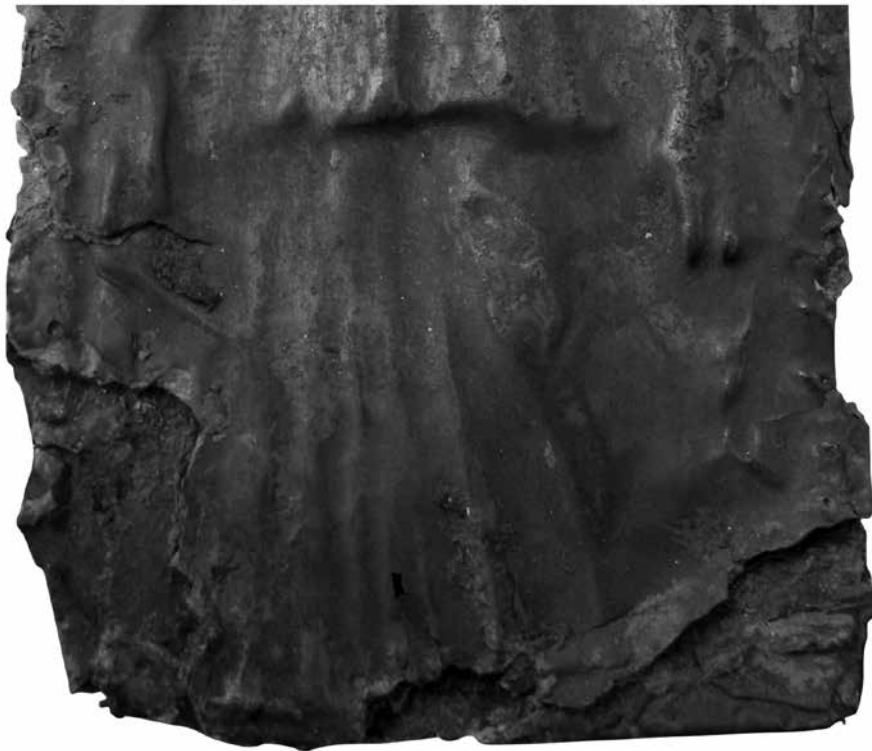


22.1b

Pl. 22.1a-b. A silver plaque with Artemis Potnia Theron from Ankara (by the authors, 2011).



22.2a



22.2b

Pl. 22.2a-b. Iconographic details (by the authors, 2011).



22.3a



22.3b

Pl. 22.3a-b. A bronze plaque with Artemis Potnia Theron from Ankara (by the authors, 2011).



22.4a



22.4b

Pl. 22.4a-b. Iconographic details (by the authors, 2011).

Two Busts of Isis and Two Amulets with Harpocrates from Ankara. Remarks On a Harpocrates Representation On a Ring

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Abstract: In this article, the artefacts of depicting Egyptian gods Isis and Harpocrates (Ἄρποκράτης) are introduced. It will be introduced here is a collection of one silver and the other is bronze a total of two Isis statuettes, two bronze amulets depicting the figure of Harpocrates and a bronze ring depicting Harpocrates are all dated to the Roman Period. These artefacts, which are preserved in private collections in Ankara, are typologically defined and tried to explain the place of the gods in the Greco-Roman world. As the mother goddess Isis, healer at the same time because of the magical properties of women and slaves in the Roman world was a goddess loved by. Horus (later Harpocrates), the son of Isis and Osiris, is a harbinger of the newborn sun, essentially portrayed as a chubby boy who makes his ‘silence’ sign with his fingers to his lips. We often see depictions of both gods on coins, ring gems and amulets. But here it was that we publish Harpocrates in bronze ring gems, bronze bust of Isis and Harpo amulet depicting two, very little is known in the world and Turkey. Very few publications have been published on this group of works. The iconography, cult and extensions of mother-son gods Isis and child God Harpocrates, who have magical powers, in Anatolia in the Hellenistic and Roman periods are examined and evaluated in this publication.

Keywords: Bronze, figurine, bust, amulet, Isis, Harpocrates.

Özet –İki İsis Büstü ve Harpocrates ile İki Muska. Bir Yüzük Üzerindeki Harpocrates Temsili Üzerine Açıklamalar : Bu makalede, Mısır kökenli tanrılar Isis ve Harpocrates tasvirli eserlere yer verilmiştir. Burada tanıtılacak olan biri gümüş diğeri bronz toplam iki İsis heykelciği, Harpocrates tasvirli iki bronz amulet ve bir Harpocrates betimli bronz yüzükten oluşan eserlerin hepsi Roma Dönemi’ne tarihlendirilmektedir. Ankara’da özel koleksiyonlarda korunan bu eserlerin Greko-Romen dünyasında tanrıların yeri açıklanmaya çalışılarak tipolojik olarak tanımlanmaya çalışılmıştır. İsis Ana Tanrıça olarak, şifacı, iyileştirici aynı zamanda büyücü özelliğinden dolayı Roma dünyasında kadınlar ve köleler tarafından çok sevilen bir tanrıça olmuştur. Isis ve Osiris’in oğlu çocuk Horus (sonradan Harpocrates) ise, yeni doğan günün habercisi olup, genellikle parmaklarını dudaklarına götürerek ‘sessizlik’ işareti yapan tombul bir çocuk olarak betimlenmektedir. Her iki tanrının tasvirlerini çoğunlukla sikkeler, yüzük taşları ve amuletler üzerinde görmekteyiz. Fakat burada yayınlanan bronz yüzük taşındaki Harpocrates, bronz İsis büstü ve Harpocrates betimli iki amulet, Türkiye’de ve dünyada çok az tanınmaktadır. Bu grup eserler üzerine çok az sayıda yayın yapılmıştır. Sihirli güçleri olan ana-oğul tanrılar Isis ve çocuk Tanrı Harpocrates’in ikonografisi, kültü ve bu inancın Hellenistik ve Roma Dönemi’nde Anadolu’daki uzantıları bu çalışma kapsamında incelenecek ve değerlendirilecektir.

Anahtar Kelimeler: Bronz, heykelcik, büst, Amulet (muska), Isis, Harpocrates.

The subject of this article is a group of four figurines, one silver and three bronze, with a bronze ring, which are in the collections of three different Movable Cultural Properties collectors in Ankara. Mrs Figen Sarı and Mr Yüksel Erimtan, collectors, are affiliated with the Museum of Anatolian Civilisations, and Mr Mehmet Arsal continues

his private collecting activities at the Ethnographical Museum of Ankara.¹

¹ I would like to thank Mrs Figen Sarı, Mr Mehmet Arsal and Mr Yüksel Erimtan who allowed me to publish these artefacts in their collection. In addition, I would like to thank Dr Gülseren Kan Şahin, Mrs Selma Ünal

Of these five objects, a bronze bust of Isis and a bronze amulet in the shape of Harpocrates are held in the collection of Mrs Sari; another bronze Harpocrates amulet and a silver figurine of Isis are in the collection of Mr Arsal. Both collectors bought these artefacts in early 2017. In the collection of Mr Erimtan, is a bronze ring depicting Harpocrates in *intaglio*, previously published by us in a book.² Isis and Harpocrates, who are of Egyptian origin, were also very popular in ancient Egypt because of their magical powers as well as representing mother and son. The cults of both Isis and the child Harpocrates spread rapidly in the Greek and Roman worlds from the time of the Ptolemies (ca. 300 BC.).³ In particular, from the beginning of the second century AD (during the Hadrianus period), the cult began to make its presence felt in all Roman areas. Before introducing the artefacts in this article, the myths of Isis and Harpocrates will be briefly mentioned.

The goddess Isis in the Greco-Roman world

Isis (ancient Egyptian Aset or Eset; classical Greek Ἴσις) was a major goddess in ancient Egyptian religion whose worship spread throughout the Greco-Roman world⁴. Egyptian scientists do not agree on the origin of this name. The symbol of the throne has an intimate connection with Isis because 'Throne' is the meaning of her name. Isis was first mentioned in the Old Kingdom (ca. 2.686–2.181 BC.) as one of the main characters of the Osiris myth, in which she resurrects her slain husband, the divine king Osiris, and produces and protects his heir, Horus. Since the end of the Old Kingdom period, Isis, together with Osiris, formed a holy couple worshiped by all Egyptians. In the Hellenistic period, the cult of Isis spread to many different landscapes in the Mediterranean. Isis was assimilated to various Greek and Roman divinities and forms of religious activities. Isis, considered the mother goddess of the Egyptians, worshipped by the Greeks from the Hellenistic period, together with their goddesses Demeter, Hera, Tyche, Io, Aphrodite or Selene.⁵ Isis is also an important goddess in the Roman world.⁶

The myth of Isis and Osiris

Isis, one of the most important goddesses of ancient Egypt, does not have a place in the Greco-Roman pantheon. But her cult and the myths about her became very widespread in the whole Greco-Roman world.

In the Egyptian pantheon, Isis was the wife of Osiris and the mother of the sun-god Horus (Harpocrates). Seth, the dark

god, killed Osiris and Horus, son of Isis, avenged him the next day. Isis called Osiris during the night and continued to lament until she avenged him. Her myth (her quest for Osiris) and her iconography (Isis is often portrayed as a cow supporting the symbol of the moon) were linked to the myth of Io.⁷ Isis was also linked to Demeter, whose mythical search for her daughter Persephone resembled Isis's search for Osiris.⁸ Demeter was one of the few Greek deities to be widely adopted by Egyptians in Ptolemaic times, so the similarity between her and Isis provided a link between the two cultures.⁹ Besides, the fact that Demeter was a mother and some of her mysteries facilitated this identification. For example, Isis is a universal female principle, as seen in the time of Apuleius:¹⁰ Isis reigned over the seas, the blessings of the earth and the dead; as the goddess of magic she ruled the transformations and elements of living and inanimate things.

Isis is sometimes depicted with a star and a white crown on her head, and sometimes suckling her child. Isis, described in Egyptian texts as a 'devoted', like Sirius, is also the goddess who tried to bring the body parts of Osiris together. Isis, a compassionate mother, is also prominently known as responsible, dependent on her duty and as a loyal wife (her loyalty to Osiris). She is also referred to as the greatest mother and the master of magic, and as Isis, who dominates the winds, rains, rivers, ships, and the ruler of all waters. According to the Egyptian book of the dead, her son Horus, depicted as a falcon, is the god of the voice of conscience. The most common symbols of Isis in various descriptions are the cow, horns, cow horns among the sun disc, globe, jug, crescent, dolphin, vulture, phoenix, breastfeeding child or milking, ship or boat, sickle-handed cross or *ankh* and a symbol similar to the *ankh* called 'the knot of Isis'. In the iconography of the Roman period, a *sistrum* is seen in her hand (a kind of instrument that makes rattling sounds, used by the nuns at Isis festivals and funeral ceremonies). From the second century AD, at least religious syncretism about female creatures has formed around it.¹¹

The history of worship of Isis, the goddess of life, fertility and protection of Egypt, is quite variable in the Roman world. For the first time, she entered Rome in the first half of the first century BC. and gathered great support, especially among slaves. Statues and temples of the goddess were erected in the Capitolium. During a sacrificial ceremony, her devotees claimed that the authorities had done nothing on behalf of Isis, and they made a protest at the ceremony. The Temple of Isis was destroyed by the order of the Roman Senate. The worshippers of Isis did not give up and built a new one, but after a while, the Senate again destroyed this temple. These interventions increased the number of believers in Isis. In 43 BC., the triumvirate

and Mr Mesut Dilaver for their help. In particular, I would like to express my gratitude to our esteemed collector, Mr Alp Sari, for showing and publishing the artefacts in the Mrs Figen Sari Collection.

² See: Konuk and Arslan 2000, no. 181 (in this publication we mistakenly identified the figure on the ring stone as Nike).

³ See also the cults of both Isis and the child Harpocrates: Sandri 2006, p. 27ff; Frankfurter 1998, pp. 99–112; Donalson 2003, pp. 6–7 and 74.

⁴ Hart 2005, pp. 79–83.

⁵ LIMC V 1990, p. 761.

⁶ Witt 1971, pp. 55, 124, 152–164. The cymbals used in the worship of Cybele seem to have served a similar purpose.

⁷ Smith 1872, p. 570.

⁸ It is pointed to the similarity between Isis and Demeter: Tobin 1991, pp. 187–200; and also Pakkanen 2011, pp. 130–37.

⁹ Thompson 1998, pp. 699, and 704–707.

¹⁰ Bohm 1973, pp. 228–31.

¹¹ Grimal 1996.

administration of Marcus Antonius, Marcus Aemilius Lepidus and Octavian built a temple in the name of Isis. However, the negative political tension between Egypt and Rome escalated when Cleopatra, who described herself as ‘the new Isis’, supported Marcus Antonius. After the battle of Actium between Antonius and Octavian, when Antonius was defeated, the religions of Egypt were banned in Rome until the reign of Hadrianus. Thus, Isis worship continued in secret. In Anatolia, Isis became a goddess, like Artemis/Hecate or Cybele, who dominated the land, agricultural products, sea and underground countries, who held death and life and ruled the forces of nature through magic. It is understood from the ruins of the temples bearing the name of Ephesus and Pergamum that Isis was especially worshiped in Asia Minor.¹²

The myth of Harpocrates

Harpocrates is the name of the Egyptian god Horus in Greek (Ἄρποκράτης) and Latin (Harpocrates).¹³ According to Egyptian mythology, Horus is a hero who avenges the murder of his father Osiris. Harpocrates generally appears to be a member of the cult of the Egyptian gods, such as Isis and Serapis.¹⁴

Horus, often referred to as Harpocrates (Horus the child) in ancient Greece, was originally the god of lower Egypt.¹⁵ The peculiar and unique characteristics known to the Greeks are almost entirely due to his role in the Osiris myth. Later, when Plutarch talked about Isis and Osiris, he made this legend a little more Hellenised. After Osiris was killed, Isis gave birth to Horus. After many attempts, Horus succeeded in punishing Seth (Typhon), the god of darkness. Seth had killed Osiris and distributed his corpse, which he had torn to pieces, all over Egyptian soil. Isis called to Osiris all night and continued to lament until Horus avenged his father.¹⁶

Egyptian mythology extensively chronicled the obstacles faced by the inexperienced teenage god, and in later periods the child Horus attracted the attention of the Greeks and Romans. Outside Egypt, there are several statues dedicated to Horus, sometimes on horseback, depicting him as a falcon-headed warrior. Also, in numerous examples, he appears as Harpocrates, a chubby boy with his finger to his lips, making a ‘hush’ sign. He is also often depicted as a baby breastfed by his mother Isis, or less often as a teenager or a child sitting on a lotus flower, both in and out of Egypt.

Depictions of Harpocrates are most commonly seen in ring gemstones, amulets made of semi-precious stones, bronze objects, terracotta figurines, terracotta objects and small amulets made of terracotta, gold, silver, ivory, bone

and bronze. In addition, there are numerous sculptural depictions of Harpocrates, up to life-size statues. In his depictions in various forms, he was sometimes described as Heracles, Eros and Apollo.¹⁷ Horus, one of the most important of the Egyptian gods, was identified with the sun god Ra, like all other hawk-headed gods. Horus was already a god of the kingdom and with Seth he played an important role in the mythological establishment of the ideal pharaonic order. In the Osiris myth, Horus is the son of Isis and Osiris, whom he avenged. ‘Harsiesis’ (son of Isis) and in general ‘Haroeris’ (Horus the Elder) is the hawk or ‘Harsomtous’ (Horus, which unites the two countries). In pyramid texts and Egyptian art, he is depicted in the form of a child, with a shaved head and a tuft of hair symbolising childhood on his right temple. Seth and Neper were combined with Harsiesis to create a god with three different appearances: as the first two hours of the sun rising above the horizon (Harpocrates as the creator of the universe on the lotus), as the god of fertility and as the child of the sacred couple Isis and Osiris. The main cults of Harpocrates are seen in the Hellenistic and Roman periods in Pelusium and Faiyum in the Nile Delta. The ‘Great’ Horus appears to be a horseman during the Greco-Roman period and recalls the Isiac festival with his victory over Seth. Also outside Egypt, Harpocrates often is shown as Isis’ breastfed child.¹⁸

Although the birth myth of Horus is known from the time of the Fifth Dynasty, the non-Egyptians learned this myth from Plutarch, in a late but fairly accurate adaptation. Osiris was killed by his jealous brother Seth. His body was closed in a coffin and thrown into the Nile. When his wife Isis finds out what has happened, she starts looking for him. She finds her husband’s body trapped in a tamar tree in Byblos, which has been turned into a column of the royal palace by local builders. Isis takes the body of Osiris back to Egypt after the King has agreed to his release. Isis lies on her husband’s body and she becomes pregnant as a result of this interaction.¹⁹

Harpocrates enters the Greco-Roman world with Isis and Serapis and officially only plays the role of ‘synnaos theos’. He is the symbol of silence or provider of silence for many ancient Greek and Latin writers, due to his childish movement (Harpocrates, most often represented as a chubby infant with a finger held to his mouth).²⁰ Harpocrates was very popular not only in Egypt but also in the entire Mediterranean world due to his depiction in many monuments.

While examining these depictions of mother and son, a chronological order was not followed, either in the text or in the catalogue. Instead priority was given to the mother in the introduced examples.

¹² Fossel 1972–75, pp. 212–19.

¹³ Ovid, *Metamorphoses* 9, pp. 688 ff, and 692 ff; Pseudo-Hyginus, *Fabulae* 277.

¹⁴ Adkins and Adkins 1996, p. 97.

¹⁵ See also Meeks 1977, pp. 1004–11; and Seele 1947, pp. 43–53.

¹⁶ Grimal 1996, p. 238.

¹⁷ Redford 2001, p. 531.

¹⁸ Hornblower and Spawforth 2003, pp. 728–29.

¹⁹ *LIMC* 4, 1988, p. 415.

²⁰ *LIMC* IV 1988, p. 416.

1- The silver figurine of Isis/Tyche

It is reported that this silver figurine came from Ankara-Beypazarı (figs. 23.1a-d). This figurine,²¹ produced via the lost-wax method, (fig. 23.1d) is 7 cm in height. Any sign of the base of the figurine, which we think originally stood on a plinth, has disappeared. This mostly intact silver Isis figurine is wearing a long-sleeved *chiton* that covers her feet and covers her head with a *chimation* (figs. 23.1a-c). Her weight is on her right leg, the left leg stands out slightly and it is clear from the silhouette under the clothing that it is bent at the knee. The goddess wears a crown as seen in all bronze Isis/Tyche figurines.²² The upper edge of the crown, decorated with a full moon between two cow horns on the crown and a feather extending upwards from both sides, is broken (figs. 23.1a-c). There are also marks of damage, minor fractures and missing details in the nose, chin and under the chin. The goddess holds the rudder of a ship with her right hand on the side (figs. 23.1b-c). Her left hand, which was raised and broken at the elbow, was probably holding her *cornucopia* in her left hand.²³ The folds of her *chimation* extend from right to left of the body in intertwined waves. Since the work has entered the collection in the same condition in which it was found, it is corroded and black in colour (figs. 23.1a-c). Small holes were formed on the front face due to wear and rot (figs. 23.1b-c).

Standing Isis/Fortuna figurines are always depicted with a crown on her head, a rudder in her right hand and a *cornucopia* in her left arm.²⁴ The majority of these figurines are bronze and very few in silver are known. These figurines are dressed in a long *chiton* and *chimation*,²⁵ and while some figurines show an Isis knot at the front of the dress,²⁶ as in this example, the Isis knot is not seen on the majority of known examples. In certain, very few, examples among already published Isis/Tyche bronze figurines, the goddess was depicted wrapped in a cloak or with a mantle covering her head.²⁷ The silver Isis/Tyche figurine in the Arsal Collection attracts attention with its unusual head-cover. Moreover, in almost all known Isis/Fortuna figurines, Isis wears a short-sleeved *chiton*, while the example from the example from the Arsal Collection wears a long-sleeved dress. Two bronze figurines identified as Isis/Tyche are exhibited in the British Museum Collection. One of these two statuettes sits; the other one is standing, wearing a short sleeve *chiton*, *chimation* and the head-cover, holding a rudder in her right hand and two *cornucopia* horns on her left arm. This bronze Isis/Tyche figurine, acc. no. 1955,1215.1 and found in Cyprus, is dated to the second century AD. In addition, The only silver Isis/Tyche statuette included in the British Museum Collection was purchased in 1867 with the acc. no. 1867,0508.761, and

is dated to the first century AD. This silver figurine also holds a rudder and *cornucopia*.

The Egyptian goddess Isis, called Isis/Fortuna or Isis/Tyche in the east, formally entered the Roman religious system in AD 38 by the temple built by Caligula on the Campus Martius in Rome.²⁸ Isis is an ancient goddess with a wide range of powers, including the opportunity to offer her followers a better life. In the Roman religion, Isis often appeared as one of the new united gods, combined with similar Roman goddesses.

As seen in the Arsal figurine, with Isis/Tyche appears as a fertility goddess who controls the fate of both individuals and cities. The Isis/Tyche composite figurine embodies the features of each goddess. Therefore, the statuette wears a full-hood as headgear, a head-cover among the cow horns or feathers she wears on her head, a long-sleeved dress that goes down to the ground and a mantle. Elements drawn from the iconography of Tyche include her rudder which expresses control over the course of human life and the horn on her left arm which symbolises abundance and prosperity.

Consequently, such figurines must have been used in a Roman house, in a holy place dedicated to the god, believed to protect the household, in a miniature temple, or in a simple cupboard or niche with god figures. The ancestor believed to protect the house is called *lar*. This place, which was called *sacrarium*, *sacellum* and *aedicula* in the early periods, was called the *lararium* during the Roman Empire. In *lararia*, which can be found in parts of the Roman house such as the *atrium*, kitchen or dining room, sacrifices are presented to the gods every day by the master of the house, giving names to babies, reaching adolescence and marriage ceremonies.²⁹

As a result, these figurines must have been used as protective idols in homes and shops, or left as a votive statuettes to the temple or sanctuary of the goddess. We propose to date this figurine from the Arsal Collection to the second century AD in Ankara.

2- The bronze bust of Isis

This bronze bust is reported to come from Tralles, modern Aydın. This artefact, which was produced by a hollow casting and the lost-wax technique,³⁰ is 9.6 cm high. The bust with a pear-shaped body is intact (fig. 23.2). In this bust, the goddess wears a high Isis Crown (royal crown) on her head. Isis's hair is parted in the middle and collected at the top (fig. 23.2a). Also, two curls of hair descend from the sides of her head to the shoulders (fig. 23.2b). The goddess wears a V-fold *peplos* with a collar and a shawl covering her shoulders. The lower part of the bust has its wings spread (fig. 23.2c).

²¹ Bingöl 1999, p. 25; and also Bilgi 2004, p. 139.

²² LIMC V.1 1990, pp. 784–86 (E. Isis-Fortuna), nos. 305a-318a.

²³ LIMC V.1–2 1990, pp. 784–86 (E. Isis-Fortuna), nos. 303a, 305a-319b (with *cornucopia*).

²⁴ LIMC V.1, p. 784 (see. E. Isis-Fortuna); De Salvia 1987, pp. 7–15.

²⁵ LIMC V.2, pp. 520–23, nos. 305a-305e, 311b-311t, 312a-312i, 313a-h, 315b-315c, 318a, 319b.

²⁶ LIMC V.2, nos. 305a, 305c, 305d, 305e.

²⁷ LIMC V.2, nos. 311b, 313a.

²⁸ Dürüşken 2000, p. 144.

²⁹ Karatag 2013, p. 245.

³⁰ Bingöl 1999, p. 25; as well as Bilgi 2004, p. 139.

The closest analogue of the bronze bust of Isis in Ankara, which we suggest to date to the mid-second century AD, is the bronze Isis bust at the Museum of Mount Holyoke College of Art³¹ in the USA. This bronze bust (acc. no. 1965.10.CG),³² just like the bust in Ankara, was produced using the lost wax casting technique, and is 11.4 cm high. Like the bust in Ankara, the bust in the Museum of Mount Holyoke College of Art is mounted on a similar cylindrical base. On her head, she wears a small crown with the sun-disc, horns and lotus leaves, leaving her hair exposed. She also wears a *peplos* and a knotted shawl on her shoulder. On the bottom of the bust is a bird protome relief (perhaps a phoenix or vulture?) with wings open. The bust has a cylindrical base. As you can see, the bust of Isis at the Museum of Mount Holyoke College of Art is iconographically similar to the bust in the Figen Sarı Collection in Ankara, with a few details. Although it is not known where the Isis bust from Mount Holyoke came from which is dated to the Hadrian period; but it resembles to the Isis figurine in Ankara.

In addition, the bronze Isis bust at the Regional Museum of Turnu Severin in Romania (acc. no. 9173)³³ and the bronze Isis bust at the National Museum of Egypt in Alexandria (acc. no. 22288)³⁴ are dated to the Roman period. These two bronze busts of Isis are not very similar to the bust of Isis in Ankara except for the pear-shaped body.

I would like to briefly mention the bronze figurine of Isis Panthea³⁵ (acc. no. 29/25/75) found in Ephesus Slope House 2 in 1969, dated to the third century AD, which is housed in the Museum of Ephesus today.³⁶ This statue of Isis Panthea (14.2 cm high) has been identified with Athena and Tyche. The bronze statue of Isis Panthea in the Museum of Ephesus wear a high crown, *chiton* and *chimation*. Her cuirass is decorated with a Gorgon head; she holds a rudder in her right hand and a bird in her left hand. These attributes can be identified with the head of Gorgon and Athena and with the rudder of Tyche (Fortuna). It is noteworthy that the Ephesian Isis Panthea figurine dated to the third century AD and the Isis bust in the Figen Sarı Collection was found in a closed region (*i.e.* in Tralles in Lydia). Another similar figurine is the bronze Isis/Fortuna³⁷ figurine in Ephesus that 19 cm in height and a figurine in the J. Paul Getty Museum in Los Angeles, CA (acc. no. 71.AB.180). The Getty's figurine is dated to the second century AD.

The bust of Isis in Ankara was probably used by people who believed in the goddess to protect them from evil

spirits in the house or as an oblation to the holy places of the goddess.

3- The bronze amulet with Harpocrates figurine

The next object under discussion in this paper is a small amulet (6.5cm h.) with a Harpocrates figurine in the Aarsal Collection. Harpocrates is naked and wears a crown with a cobra (**figs. 23.3-3c**). The hair is gathered from the top and falls over the shoulders in the form of a wavy ponytail (**figs. 23.3-3a**). The child Harpocrates holds the index finger of his right hand to his lips, making a sign of 'silence' (**figs. 23.3-3c**) and keeps his left arm close to his body (**figs. 23.3-3a**). On the back of the figurine, a three-knot vertical handle extending from the bottom of the head to the neck is intact (**figs. 23.3b-c**). Harpocrates is portrayed with his knees bent (**figs. 23.3b-c**) sitting on the lap of his mother Isis (breastfeeding Horu).³⁸ There is a low square base under its feet.

When we examine this bronze Harpocrates figure in the Aarsal Collection from a stylistic point of view, we found that it reflects the style of the Ptolemaic dynasty. The frontal posture, the shaved head with a thick curl of hair waving out from the top and over the shoulders on the right side, the bent knees (sitting on the lap of his mother Isis) and the 'silence' gesture are typical feature of the Ptolemaic period.³⁹ The shape of the crown, with a cobra on its head, is also seen in early depictions.

A relief sculpture of Harpocrates in the middle of a round bowl of soapstone (steatite), at the Museum of Cairo (acc. no. CG 18757), dated to the second century BC., depicts the child god in a frontal manner, standing on a low base.⁴⁰ In this artefact Harpocrates, with his shaved head, hair curl symbolising childhood on the right side of the head, right hand holding his index finger to his lips and left hand against to the legs, shows the typical characteristics of the Ptolemaic period. In the National Museum of Denmark in Copenhagen, on a bronze drachamai⁴¹ (acc. no. 9412), Harpocrates is depicted in the same way; this bronze dirham is included in the catalogue of the National Museum of Denmark and dated to the third/first century BC. A bronze Harpocrates figurine at the Isabella Stewart Gardner Museum in Boston, MA (acc. no. S15w8) is also dated to Ptolemaic period.⁴² In this case, for the bronze amulets with Harpocrates figurines in the Aarsal Collection, we propose dating these to the third/second century BC.

³¹ See for this Isis bust:

<<https://artmuseum.mtholyoke.edu/object/bust-isis>> (accessed on 07/01/2020).

³² Mitten and Doeringer 1967, p. 278, fig. 270; *LIMC* V, p. 770, no. 123.

³³ *LIMC* V, p. 770, no. 118.

³⁴ *LIMC* V, p. 770, no. 111.

³⁵ Vettors 1970, p. 118; Erdemgil 1989, p. 11; Fleischer 1970, p. 460, fig. 33; *LIMC* V, p. 787, no. 319f; Krinzing 2010, fig. 475, no. B-B 84.

³⁶ Hölbl 1978, pp. 59–63.

³⁷ *LIMC* V, p. 784, no. 305j.

³⁸ For the figure of Isis breastfeeding Horu (Harpocrates): *LIMC* V, no. 216 (Golden ring), pp. 217–26 (bronze coins), pp. 227–31 (stone sculptures), pp. 232–36 (terracotta). Another example from Naukratis currently on display at the Boston Museum of Fine Arts is from the Ptolemaic dynasty: <<https://collections.mfa.org/objects/131354/statuette-of-isis-nursing-horus?ctx=946b2be4-d80f-4ab2-b4dd-f0aefec44f9f&idx=0>> (accessed on 07/01/2020).

³⁹ *LIMC* IV.1, p. 415 and figurines for shaven hair, *LIMC* IV.2, nos. 7 ve 9.

⁴⁰ *LIMC* IV, no. 7

⁴¹ *LIMC* IV, no. 9

⁴² *LIMC* IV, no. 19

4- Bronze amulet with Harpocrates figurine

The Harpocrates-shaped amulet in the Sarı Collection is a miniature figurine 2.2 cm in height (figs. 23.4-4c). Harpocrates stands in frontal position (fig. 23.4). His head is shaved, the fingers of his right hand resting on his lips make a 'silence' gesture and he holds his left hand against his legs (figs. 23.4b-c). There is a flat-round carrying ring on the back of the amulet (fig. 23.4c). The amulet, stylistically examined, the head is shaved and the legs (frontal) posture in terms of the Ptolemy period also reminds us of the descriptions of Harpocrates. Although there are no published examples of this miniature bronze amulet, it is possible to date this object to the second/first century BC.

5- A bronze ring depicting Harpocrates

This artefact is included in the Yüksel Erimtan Collection (today the Archaeological and Art Museum of Erimtan in Ankara). The bronze ring depicting Harpocrates, which we think was recovered from the vicinity of Ankara, was previously published by us. In our first publication, the figure above this ring no. 700 was identified as Nike,⁴³ but this publication will correct this mistake.

Harpocrates is depicted naked and kneeling on a bronze ring with a broken hoop (figs. 23.5-5a). Harpocrates, with a double lotus-petal crown on his head, holds the fingers of his right hand to his lips and holds a palm branch in his left hand (fig. 23.5a). This ring may have been used by the wearer to protect him or as a personal seal since it is an *intaglio*.⁴⁴ It is dated to the second century AD.

Conclusions

In this brief paper I introduced five small artefacts mentioned above: the Isis/Tyche figurine, bronze Isis bust figurine, two bronze Harpocrates amulets and a bronze seal ring. It is a coincidence that, apart from the bronze ring, these four artefacts of mother and son were purchased by two different collectors from Ankara in 2017. The silver Isis/Tyche figurine in the Arsal Collection and the amulet with the bronze Harpocrates figure were probably found around Ankara. It is said that the bronze Isis bust in the Figen Yellow Collection is probably from the vicinity of Lydia-Tralles from Aydın region and the bronze Harpocrates figure is also from the region of Ankara. If we consider that the bronze ring depicted in Harpocrates was found around Ankara, it can be suggested that this mysterious religion was present in the Galatia region during the Roman period. On a coin showing the portrait of Faustina II from Pessinus in Galatia, the child god Harpocrates is depicted standing bare, facing right, two hairy crowns on his head, holding his right hand on his lips and holding a *cornucopia* in his left hand.⁴⁵ In addition, on the coins of Pisidia-Parlais, a Roman colonial city, we see

the Isis/Tyche iconography, with the Isis head, rudder and *cornucopia*.⁴⁶ Depictions of Serapis, Harpocrates and Isis Pharia were frequently seen in the Roman imperial period on Pamphylia-Aspendos coins.⁴⁷ Based on these examples, we understand that the divine mother-son duo of Egyptian origin was accepted in a wide area within the territory of Asia Minor in the Roman imperial period.

Catalogue

No. 1: A silver figurine of Isis/Tyche (figs. 23.1a-e).

Repository and provenance: The Mehmet Arsal Collection, Ankara, acc. no. 193.

Measurements: H.: 7.0 cm; w.: 3.6 cm; depth: 2.0 cm.

Typological description and state of preservation: This figurine⁴⁸ was produced via the lost-wax method (fig. 23.22.1e). Standing on a plinth, standing frontally, the work is in a relatively intact condition, except for the missing plinth (figs. 23.1a-b). Isis covers her head with a *himation*, wearing a long-sleeved *chiton* and *himation* that covers her feet. By giving the body weight to the right leg, the left leg stands out slightly and it is felt from the pressure it has made on the clothing it is bent at the knee. The goddess bears a high Isis Crown at her head. It is decorated with a full moon standing between the two cow horns on the crown and two feathers extending upwards. The top edge of the crown, half of the cow horns are broken and deficient (fig. 23.1d). There are also bruises, fractures and deficiencies in the nose, chin and under the chin. The goddess holds the helm of the ship with her right hand on the side, on the ground (fig. 23.1c). He held up the *cornucopia*, possibly in the hand that had been raised and broken and deficient from the elbow. The folds of *Chimation* descend from the right to the left of the body in waves, descending to the ground to cover the toes. The surface of the figurine was black silver oxidized and holes were formed on the front of the work due to wear and rot. Bibliography: *LIMC* V.2, p. 522, no. 313a (similar example).

Date: second century AD.

No. 2: A bronze bust of Isis (figs. 23.2a-d).

Repository and provenance: The Figen Sarı Collection, Ankara, acc. no. 193.

Measurements: H.: 9.6 cm; w.: 5.6 cm; depth: 2.0 cm.

Typological description and state of preservation: Bust-shaped artefact of Isis is produced by the hollow casting technique, melting the wax into the clay mould⁴⁹. The pearl-shaped bust is left hollow. It was possible that this hollow part was filled with bullets, or using a solid sphere ball⁵⁰, on a pedestal (fig. 23.2a). The bust with green bronze and brown earth patina has relatively good

⁴³ Konuk and Arslan 2000, no. 181.

⁴⁴ For *intaglio* on finger rings cf. Laflı 2012.

⁴⁵ BMC 20, p. 20, no. 14; SNG Cop. No. 124; Arslan 1992, p. 66, no. 36; SNG France 3, no. 2599–2600.

⁴⁶ HN, p. 714; SNG Deutschland 5. Band Pisidien und Lykaonien, no. 299.

⁴⁷ HN, p. 701.

⁴⁸ Bingöl 1999, p. 25; and also Bilgi 2004, p. 139.

⁴⁹ Bingöl 1999, p. 25; as well as Bilgi 2004, p. 139.

⁵⁰ Isis busts attached to the pedestal on this type of small sphere. *LIMC* V, no. 116 (Hermitage Museum, St. Petersburg); *LIMC* V, no. 123 (Mount Holyoke College Museum, acc. no. CG 10. 1965).

conditions and well preserved. Isis carries a high Hathor⁵¹ cap over his head (fig. 23.2). This high crown is round, the top of the crown ends in the shape of a lotus leaf with in a triangular shape. The top of the crown is broken and deficient. The cap narrowing upwards has flat-round body and has cobra snakes with their heads raised on both sides. In the mid. of the cap there is crescent at the bottom; also on it sun or full moon disc between cow horns (fig. 23.2c). Formerly known as the cap of Hathor, this high cap was later called Isis crown. The forehead is wide and the eyebrows have a sharp profile on the eyes, like a thin arch. The eye cupping is a deep hollow, possibly in the original with coloured stones to indicate the pupil. Eyebrow and eye distance are narrow. The nose is firm and has a delicate structure. The lips are closed, bent to the right side and a slightly cynical expression. Plump cheeks are finished with a balanced long face and a small chin. There are ornaments in the form of vertical scratches on the front of the flat pillow of the crown. Under the hood of the Isis, the hair of the goddess was collected in a wavy way, divided into two in the middle. Under the head of the Isis, the hair of the goddess was divided in half and collected in a wavy way (fig. 23.2c). The hair descends on the back of the neck in the form of a blunt and thick curl and two thin hair curls on both sides are fluctuating on the shoulders (fig. 23.2b). The *peplos* that the goddess wears is dressed with a V-neck and she wears a shawl covering her shoulders. The collar of the *peplos* worn by the goddess is V curved and she wears a shawl (*himation*) covering her shoulders. At the bottom of the bust is a protome-shaped, ibis (Phoenix) bird relief, spreading its wings to the right and turning its head to the right (fig. 23.2d). Although the face of the artefact is well preserved, there are smaller bronze spills on the chest, mainly on the right cheek. Although the surface of the artefact is well preserved, there are smaller bronze spills on the chest, mainly on the right cheek. The pit-shaped eye is likely to have been used in the original state, while the eye-flux was coated with silver and the pupil was mounted with coloured stones.

Bibliography: Museum of Mount Holyoke College Art, acc. no. MH 1965.10.C.G (similar); *LIMC* V, no. 111, the National Museum of Egypt in Alexandria, acc. no. 22288, bronze Isis bust (similar); and also no. 118 Muzeul Regiunii Porților de Fier, Drobeta-Turnu Severin, II, acc. no. 9173, bronze Isis bust (similar).

Date: second century AD.

No. 3: A bronze amulet with Harpocrates figurine (figs. 23.3a-c).

Repository and provenance: The Mehmet Arsal Collection, acc. no. 36.

Measurements: H.: 6.5 cm; w.: 2.0 cm.

Typological description and state of preservation: The amulet in the form of a child Harpocrates statuette is used by hanging it through the ring at the back. The bronze figurine was cast into the clay mould on both sides in a

filled casting technique⁵² (figs. 23.3-3c). The surface of the figurine depicted Harpocrates is sometimes bronze corrosion and soil patina. Naked Harpocrates carries a crown with a cobra depiction on his head. His head is shaved, with a wavy hair curl down to the shoulders on the right side of his head and with the index finger of her right hand pointing to her lips, she makes the 'silence' (hush) sign, while keeping her left arm clinging to his body, her hand is slightly extended from the trunk (fig. 23.3). On the back of the figurine, there is a three-knot vertical handle extending from the bottom of the head to the neck (fig. 23.3a). The handle is thick and solid. Harpocrates was portrayed with his knees bent (figs. 23.3b-c) sitting on the lap of his mother Isis (breastfeeding Horis⁵³). There is a low square base under its feet.

Bibliography: *LIMC* IV, nos. 7, 9 and also 19 (similar).

Date: third/second century BC. (Ptolemy Period).

No. 4: A bronze amulet with Harpocrates figurine (figs. 23.4a-c).

Repository and provenance: The Figen Sarı Collection, acc. no. 195.

Dimensions: H.: 2.2 cm; w.: 0.9 cm; th.: 0.8 cm.

Typological description and state of preservation: Harpocrates figurine amulet is used by hanging on the neck through the ring at the back. The miniature figurine is made of clay mould in a filled casting technique⁵⁴ (figs. 23.4-4a). The figurine of Harpocrates is covered with brown clay patina and has small spots of bronze cancer stains and low condition. The upper part of the carrier ring at the rear is broken and deficient. Also, the figurine is complete. In addition, the figurine is complete. Naked Harpocrates stands with his shaved head. He holds the index finger of her right hand to his lips makes a sign of 'silence' (hush) and holds his left arm adhered to his body. The adjacent feet are in the form of a round mass (figs. 23.4-4c). The artefact is quite worn and details of his face have been erased.

Date: second/first century BC. (Ptolemy Period).

No. 5: A bronze ring depicting Harpocrates (fig. 23.5).

Repository and provenance: Archaeological and Art Museum of Erimtan in Ankara, acc. no. 700.

Measurements: The diam. of the ring stone: 15 × 10 mm.

Typological description and state of preservation: *Intaglio* of Harpocrates is described on the bronze ring stone (fig. 23.5). Harpocrates sits naked and kneeling to the left (fig. 23.5a). A pair of high feather crowns on his head,⁵⁵

⁵² Bingöl 1999, p. 25; and also Bilgi 2004, p. 139.

⁵³ For the figure of Isis breastfeeding Harpocrates (Horus): *LIMC* V, no. 216 (Gemma); nos. 219–225 (Coins); nos. 227–231 (marble sculpture); and also Michel, Zazoff and Zazoff 2001, no. 9 (serpentine stone amulet front face); Another example from Naukratis currently on display at the Boston Museum of Fine Arts is from the Ptolemaic dynast: <<https://collections.mfa.org/objects/131354/statuette-of-isis-nursing-horus?ctx=946b2be4-d80f-4ab2-b4dd-f0aefec44f9f&idx=0>> (accessed on 07/01/2020).

⁵⁴ Bingöl 1999, p. 25; and also Bilgi 2004, p. 139.

⁵⁵ For two feathers in the head of Harpocrates: *BMC* 20, p. 20, no. 14; Arslan 1992, p. 66, no. 36; *SNG France* 3, nos. 2599–2600 (coins of Pessinus); *LIMC* IV, no. 86c (Louvre, a terracotta Harpocrates statuette from Myrina, dating to the first century AD); Michel, Zazoff and Zazoff

⁵¹ Goddess of love, fertility and beauty in ancient Egypt (the head is the sun disc with the symbol of God Ra' between two cow horns).

his right hand to his lips makes a 'shut up' sign and holds a palm branch in his left hand. The ring of the ring is broken and missing from half.

Bibliography: Konuk and Arslan 2000, no. 181; Henig, Whiting and Scarisbrick 1994, no. 495 (Jasper ring similar to the figure on the stone); Michel, Zazoff and Zazoff 2001, nos. 12 and also 15–16 (Jasper ring similar to the figure on the stone).

Date: second/third century AD.

2001, no. 9 (a amulet in black serpentine, Isis breastfeeds Harpocrates on obverse, two furry crowns at the head of God Bes on reverse); Tran Tam Tinh 1973, p. 7 ff.



23.1a



23.1b



23.1c



23.1d



23.1e

Figure 23.1a-e. A silver figurine of Isis/Tyche from Ankara (by M. Arslan, 2011).



23.2a



23.2a



23.2b



23.2c

Figures 23.2a-c. A bronze bust of Isis from Ankara (by M. Arslan, 2011).



23.3a



23.3b



23.3c



23.3d

Figures 23.3a-d. A bronze amulet with Harpocrates from Ankara (by M. Arslan, 2011).



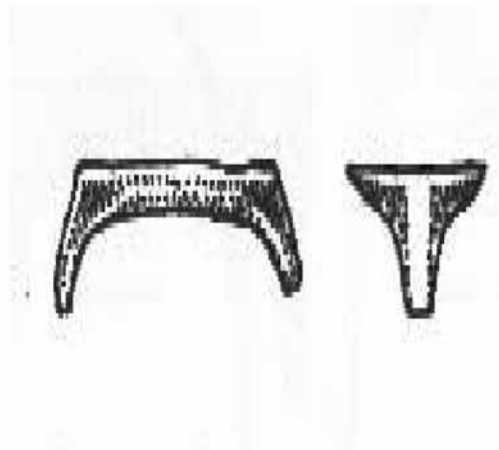
Figures 23.4a-d. A further bronze amulet with Harpocrates from Ankara (by M. Arslan, 2011).



23.5a



23.5b



23.5c

Figure 23.5a-c. A bronze ring depicting Harpocrates from Ankara (by M. Arslan, 2011).

A Selection of the Late Antique Metal Finds from Olba in Cilicia (Southern Turkey)

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Abstract: Olba in Rough Cilicia appears to be an independent residential settlement 4 km. east of the sanctuary of Zeus Olbios at Olba Diocaesarea. Archaeological excavations in the ancient city of Olba since 2010 reveal that the architectural remains of various monumental buildings belonged to the Roman Empire. However, the archaeological and literary evidence reveals that the effects of Christianity reached Olba before the fourth century AD. In later fifth century AD, especially during the reign of the Isaurian Emperor Zeno, the region developed as a bishopric centre with the construction of many churches and monumental monasteries. To support this situation, during the excavations carried out in the theater and the monastery at Olba as well as other findspots on the top or slopes of the *acropolis*, several Late Antique bronze artefacts were discovered. The objective of this article is to present a selection of bronzes finds discovered and thus contribute to the study of bronze artefacts of Asia Minor. Lighting devices are an important group that stands out in Olba bronze finds. The essential equipment for the glass lamps to function included bronze implements such as *polycandela*, lamp-hangers and wick-holders, all unearthed in excavations. Depending on the meaning and importance of 'light' in Christian liturgy, *polycandela* were the characteristic bronze furnishings of its time, *i.e.* sixth century AD. Also, a few pieces related to clothing such as needles and simple bronze rings, a bronze buckle and cross amulet were discovered during the excavations at the theatre as well. These bronze finds are important in that they indicate religious-cultural transformations and recognition of economic dynamics with neighboring areas.

Keywords: Bronze finds, instruments of illumination, amulet, Late Antique, Olba, Rough Cilicia, southern Anatolia.

Özet–Olba'dan Geç Antik Çağ Metal Buluntuları: Dağlık Kilikia'daki Olba Diokaisereia'daki Zeus Olbios Tapınağı'nın 4 km doğusunda yer alan bağımsız bir yerleşim yeridir. 2010 yılından beri Olba antik kentinde yürütülen arkeolojik kazılar, çeşitli anıtsal yapılara ait mimari kalıntıların Roma İmparatorluk Dönemi'ne ait olduğunu ortaya koymaktadır. Bununla birlikte İ.S. 4. yy.'dan önce Hristiyanlığın etkilerinin Olba'ya ulaştığını arkeolojik ve edebi kanıtlar ortaya koymaktadır. İ.S. 5. yy'ın sonlarında, özellikle İmparator Zenon Dönemi'nde, bölge birçok kilise ve anıtsal manastırın inşasıyla bir piskoposluk merkezi olarak gelişme göstermiştir. Tiyatro'da, Olba manastırı ve akropolisin tepesinde ya da yamaçlarında diğer buluntular yanında ele geçen birçok Geç Antik bronz eser bu durumu desteklemektedir. Bu makalede kazı çalışmaları sayesinde ele geçen bronz eserleri tanıtarak Anadolu bronz eserlerinin incelenmesine katkı sağlamaya çalışılacaktır. Aydınlatma araçları, Olba bronz buluntularında öne çıkan önemli bir gruptur. Cam kandillerin çalışması için gerekli olan donanım, kazı çalışmalarında ele geçen *polycandela*, fitil tutucular ve kandil askıları gibi bronz objelerden oluşmaktadır. Işığın Hristiyanlık ayinindeki anlam ve önemine bağlı olarak, *polycandela*, zamanının yani İ.S. 6. yüzyılın karakteristik bronz eşyaları arasındaydı. Ayrıca, tiyatro kazılarında iğneler, basit bronz halkalar, bronz toka ve muska gibi giysilerle ilgili birkaç parça keşfedilmiştir. Bu bronz eserler, komşu bölgelerle gelişen dini-kültürel dönüşümleri ve ekonomik dinamikleri göstermeleri bakımından önemlidir.

Anahtar Kelimeler: Bronz buluntular, aydınlatma aletleri, muska, Geç Antik Çağ, Olba, Dağlık Kilikia, southern Anatolia.

Olba in Rough Cilicia appears to be an independent residential settlement 4 km. east of the sanctuary of Zeus Olbios at Olba Diocaesarea. The geographical setting including the Olba *acropolis*, the gorges on the east and south as well as the agricultural land on the north constitute an ideal setting for a Hellenistic stronghold and later for a Roman Imperial site.

Olba is one of the ancient sites that has attracted the attention of many travelers and archaeologists since the 19th century.¹ The archaeological excavations carried out since 2010 produced results that will help us to better understand the historical phases, architectural activities and lifestyle at the site.

The majority of archaeological evidence indicates the earliest settlement at the site belongs to the Hellenistic period.² The *acropolis* of Olba was fortified by a wall and towers, also during the Hellenistic period. The architectural remains of various monumental buildings reveal a remarkable architectural program applied during the Roman Imperial period. While the rock-cut channels, aqueduct and *nymphaeum* form the elements of a fully developed water supply system, the fortified *acropolis*, many farmhouses at the agricultural land on the slopes as well as the *necropolis* suggest that Olba was a flourishing Roman imperial centre with a considerable population. The mosaic floor recently discovered during the excavations belongs to a Roman *villa* and the quality of workmanship and style reveal the presence of a high living standard at the site.³ Another remarkable monument at Olba is the Roman theater built into the northwestern slope of the *acropolis*. The theater, which had been buried, has now been unearthed after the excavations.

The archaeological and literary evidence reveals the impact of Christianity in Olba at a relatively early date, probably before the official recognition of Christianity by Rome in the fourth century AD.⁴ In the later fifth century AD, especially during the reign of the Isaurian emperor Zeno, the site grew as a centre of bishopric adorned with many churches and a monumental monastery.⁵ According to the archaeological and numismatic evidence, life at Olba came to an end by the late seventh century AD.⁶

During the excavations carried out in the theater and the monastery at Olba, as well as other findspots on the top or slopes of the *acropolis*, a number of Late Antique bronze finds were discovered. The objective of this article

is to present a selection of bronzes discovered and thus contribute to the study of bronze finds of Asia Minor.

Instruments of illumination form a prominent group among the Olba metal finds. Despite the distinct scarcity of terracotta lamps, the large number of the Late Antique glass lamp fragments found during the excavations at Olba reveals the abundant use of glass for the lighting of interiors. The essential equipment for the glass lamps to function included metal implements such as *polycandela*, lamp-hangers and wick-holders, all of which were unearthed in the Olba excavations. Either stemmed (fig. 24.1) or three-handled bowl-shaped glass lamps (fig. 24.2) were used with those bronze devices of illumination.



Figure 24.1. A stemmed glass lamp (by E. Erten, 2011).

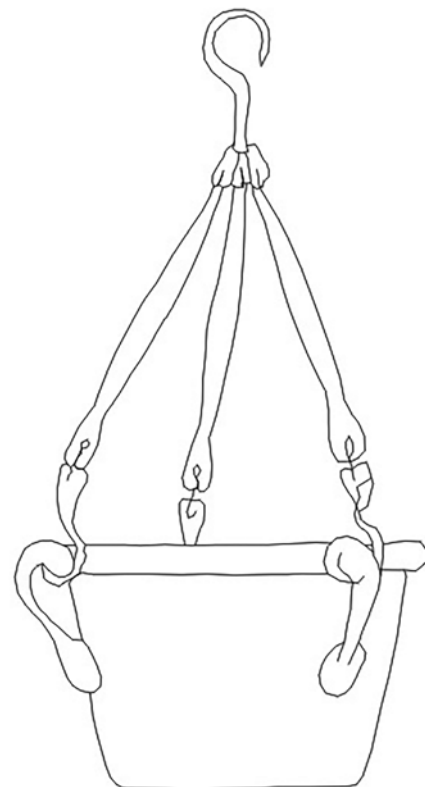


Figure 24.2. A three-handled bowl shaped glass lamp (by E. Erten, 2011).

¹ Bent 1891, p. 222; for the recording of the inscription on the aqueduct of Olba see: Hicks 1891, pp. 269–70.

² Recent finds of the excavations have begun to yield earlier evidence such as coin finds belonging to the mid-fourth century BC., i.e., before Alexander the Great's campaign in the region.

³ Erten 2016, pp. 61–91.

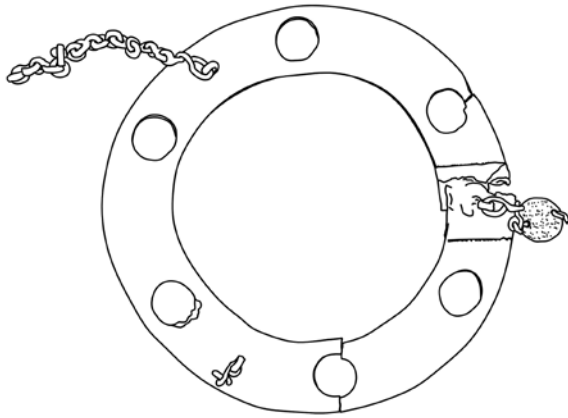
⁴ For the early stages (the first three hundred years) of Christianity in Seleucia ad Calycadnum and the region see: Özyıldırım 2004, pp. 239–58.

⁵ Özyıldırım 2012, pp. 105–18; Özyıldırım 2016a, pp. 181–201.

⁶ Erten 2014, pp. 57–72.



24.3



24.4

Figures 24.3-4. A polycandelon (by E. Erten, 2011).

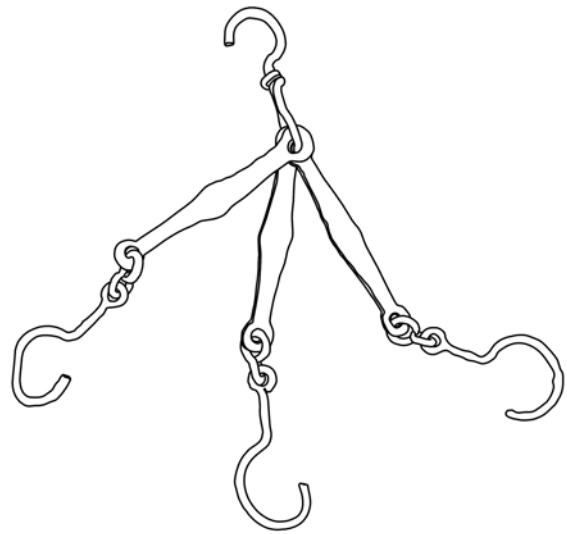
Polycandela were the characteristic metal furnishings of the sixth century AD. Although the region underwent several catastrophic events during this period,⁷ it seems clear that the monastery at Olba was in use, and indeed thriving, throughout this time. Therefore, the discovery of a bronze *polycandelon* and a lamp hanger during the excavations of the Olba monastery is not surprising.

The *polycandelon* found in trench M2 of the monastery excavations is in the shape of a disc with six circular receptacles for the insertion of stemmed glass lamps, as well as three chain hangers attached equidistantly on the disc to provide suspension. Each of these three chain hangers has disc-shaped ornaments (**cat. no. 1, figs. 24.3-4**). This basic form of *polycandelon* and its variations have been recorded in many Late Antique findspots,⁸ and several examples recorded in the region reveal the widespread use of bronze *polycandela* in Rough Cilicia. In addition to the above-mentioned *polycandelon* found in Olba, excavations at neighbouring sites such as Elaiussa Sebaste and Anemurium also yielded *polycandela*.⁹ Although their provenances are unknown, the collection of the Museum

of Silifke contains four *polycandela*, and it is probable that they belong to findspots from the same region due to the above-mentioned examples recorded at various findspots in the region including Olba.

One bronze lamp hanger, which has one suspension hook on top and three arm plates each connected to a hook, was found in a rock-cut basin in the monastery of Olba (**cat. no. 2, figs. 24.5-6**).

Lamp hangers similar to the one discovered at Olba monastery have been recorded in many Early Byzantine



24.5



24.6

Figures 24.5-6. A lamp hanger (by E. Erten, 2011).

⁷ Erten 2014, pp. 60–61.

⁸ Waldbaum 1983, p. 101, pl. 38, nos. 589–590.

⁹ The remains of *polycandela* from Elaiussa Sebaste represent a type rather different from the one recorded at Olba: Ferrazzoli 2012, pp. 295 and 306, pl. 7. For the fragment of a *polycandelon* from Anemurium see: Russell 1982, p. 137, fig. 3, no. 21.

contexts.¹⁰ It is worth mentioning that twenty-five complete lamp hangers were found together at the excavations of Perge, revealing the wide use of such hangers in southern Asia Minor.¹¹ As in the case of metal *polycandela*, lamp hangers were designed to carry glass lamps which were ‘bowl-shaped’ with three handles for suspension (fig. 24.2).

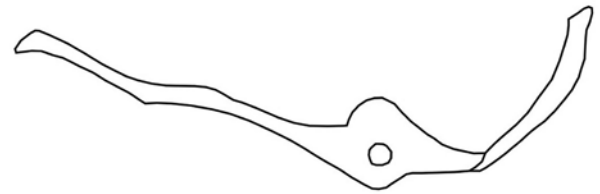
A typological study on bronze lamp hangers based on the finds from the excavations of Saraçhane (St. Polyeuctus Church, Constantinople) identified three different types (A, B, and C).¹² The Olba example seems to resemble (if not completely) ‘Type A’, with its hook-and-loop from which three looped elements were suspended.

In Rough Cilicia, lamp hangers of the same ‘A’ type have been recorded at Alahan,¹³ Elaiussa Sebaste,¹⁴ and Anemurium.¹⁵ Those must be common devices of illumination in the region as confirmed by the examples from the above-mentioned sites.

In addition to the *polycandelon* and the complete bronze lamp hanger found during the excavations at the monastery, many pieces of bronze chains or fittings that could belong to *polycandela* or lamp hangers found at several excavation trenches at Olba also indicate the wider use of such devices at the site.

A further metal implement type associated with glass lamps was the bronze strip wick-holder. It is possible to identify two types of wick-holders among the finds of the excavations at the theater and the monastery at Olba. Both types have two strips for the application of the holder along the rim of stemmed, bowl-shaped or wine-glass shaped glass lamps. While the simpler type of wick-holder has a disc with a hole in the middle (cat. no. 3, figs. 24.7-8), the other type has a cylindrical receptacle (cat. no. 4, figs. 24.9-10). The distribution of these two types of wick-holders at various sites in the eastern Mediterranean such as Elaiussa Sebaste,¹⁶ Kilise Tepe,¹⁷ Alahan Monastery¹⁸ in Rough Cilicia as well as Kourion in Cyprus¹⁹ or Antioch-on-the-Orontes²⁰ shows their wide use in the eastern Mediterranean region.

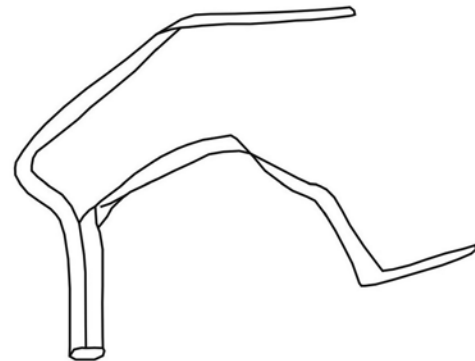
Bronze buckles were common items of clothing not only in the eastern half of the Roman Empire but also in Europe in the Late Antique period. The Crypta Balbi workshops in the Campus Martius at Rome were producing various types



24.7



24.8



24.9



24.10

Figures 24.7-10. Two wick-holders (by E. Erten, 2011).

of buckles.²¹ The use of buckles suggests the preference of trousers in clothing, a choice generally related to the

¹⁰ Examples from the Church of St Polyeuctus (Saraçhane) at Istanbul: Gill 1978, pp. 239–43, nos. 169–246; from Sardis: Waldbaum 1983, p. 101, pl. 38, nos. 591–592; from Beth Shan: Fitzgerald 1931, p. 42, fig. 27, no. 4.

¹¹ Demirer 2016, p. 242.

¹² Gill 1978, pp. 239–40.

¹³ Gough 1985, p. 70, fig. 19, no. 19.

¹⁴ Ferrazzoli 2012, pp. 292 and 302, pl. 3, no. 27.

¹⁵ Russell 1982, p. 137, fig. 3, no. 22.

¹⁶ These two types were classified as ‘Y’ or ‘S’ shaped wick holders: Gençler Güray 2010, p. 236, figs. 211–212.

¹⁷ Collon and Syminton 2007, pp. 522 and 800, fig. 456, nos. 2279–2280.

¹⁸ Gough 1985, p. 69, fig. 12, no. 10.

¹⁹ Dunn 2007, p. 531, pl. 17.1, nos. 25–27.

²⁰ Russell 2000, p. 83, fig. 5.

²¹ Ricci 2012, pp. 1–16; Baltoyianni 1997, p. 186, no. 206; as well as Giannichedda 2008, p. 196.



Figure 24.11. A belt buckle (by E. Erten, 2011).

‘barbarian’ populations in the Roman army.²² The trousers worn in the Near East reflect an Iranian-Parthian influence and related to the ‘anaxarides’, unlike the European-Barbarian type of trousers called ‘bracae’.²³

In spite of the fact that the Olba excavations yielded only one bronze buckle (**cat. no. 5, fig. 24.11**), it seems possible to suggest that the use of this item was quite common in Rough Cilicia due to the number of specimens found in the excavations at the region such as Anemurium and Elaiussa Sebaste.²⁴ Apart from the sites in Cilicia, finds from western Anatolian²⁵ or even Black Sea sites²⁶ and specimens in Museum collections²⁷ reveal some sort of frequency of the use of metal buckles in Asia Minor as well as many other provinces of the empire.

A very similar bronze buckle to the Olba example is in the collection of the Archaeological Museum of Afyonkarahisar without a recorded findspot. A typological study on a large number of bronze buckles was made by Mücahide Lightfoot using the specimens from the Amorium excavations and the collection of the Archaeological Museum of Afyonkarahisar. In this study,

²² Russell 1982, p. 145; for a detailed history of trousers and belt buckles: Lightfoot 2003, pp. 119–20.

²³ Goldman 2001, pp. 164–65 and 242.

²⁴ For the examples from Anemurium: Russell 1982, pp. 138–46; figs. 6–7; as well as from Elaiussa Sebaste: Ferrazzoli 2012, pp. 294–95, pl. 6, nos. 59–70.

²⁵ Iasos: Berti 2012, p. 191, pl. 1, no. 101; as well as Sardis: Waldbaum 1983, p. 117.

²⁶ Excavations carried out at the eastern Black Sea site of Cingirt Kayası, near modern Ordu, Turkey yielded some examples of bronze buckles: Yıldırım 2017.

²⁷ Lightfoot 2003, pp. 119–34.



Figure 24.12. A magic amulet – talisman, obverse (by E. Erten, 2011).

the above-mentioned example was identified as ‘Type 9’ and dated to the late sixth and early seventh century AD.²⁸

The oval-shaped bronze amulet discovered during the excavations at the slopes of the *acropolis* of Olba is a significant metal find (**cat. no. 6, figs. 24.12–13**). On one side we have a depiction of St George killing the dragon.

The composition on the other side of the amulet shows an evil eye at the centre, the Greek inscription Κύριε βοήθει (‘God help us’) on top, two crosses on each side of the evil eye and two lions facing each other with an ibis (bird) in the middle. The depiction of an evil eye motif on the floor mosaic discovered at Olba confirms the long history of this superstitious belief at least since Roman imperial (Pagan) times at the site. It should be noted that a very similar amulet (bearing the same depictions and inscription) was discovered in Anemurium.²⁹ These amulets from both Olba and Anemurium point out the presence of this group of representations with equestrian saints in Rough Cilicia in addition to the previously recorded examples in Egypt, Syria and Lebanon.

An object that may be a significant indication of presence of Jews at the site is a fragment of a bronze phylactery (a bronze tube with loops allowing it to be hung around the neck by a chain)³⁰ (**cat. no. 7, fig. 24.14**). Along with this find, the discovery of some pieces of metal sheet scrolls at various excavation trenches at Olba may indicate the contents of such magical containers.

²⁸ Lightfoot 2003, pp. 123 and 132, fig. 4d.

²⁹ Russell 1982, p. 137, fig. 4, nos. 44–45.

³⁰ Özyıldırım 2016b, pp. 119–35.



Figure 24.13. A magic amulet – talisman, reverse (by E. Erten, 2011).

The general evaluation of the selected Late Antique bronze finds at Olba reveals that the majority of bronzes were associated with illumination. Also, a few pieces related to clothing, such as needles and simple bronze rings, a bronze buckle and a cross amulet³¹ (fig. 24.15), were discovered during the excavations at the theatre as well. The bronze amulet (talisman) with the representation of an evil eye and its inscription is significant as it reflects the philosophy of life of, and the impact of Christianity on the people of Olba, while the bronze phylactery may suggest a possible Jewish community at the site.

Catalogue of bronze objects mentioned:

No. 1: Polycandelon (figs. 24.3-4).

Findspot: Monastery, Trench M2.

Measurements: diam. of disc: 24.0 cm; w. of disc: 4.0 cm; diam. of each receptacle on the disc: 2.5 cm; diam. of each hook suspended to arms: 2.0 cm.

Typological description and state of preservation: A disc with six circular receptacles for the insertion of stemmed glass lamps. Three chain hangers attached equidistantly on the disc to provide suspension, each having disc-shaped ornaments.

No. 2: Lamp hanger (figs. 24.5-6).

Findspot: Monastery, Stone Basin.

Measurements: H.: 14.0 cm; diam. of suspension hook: 1.5 cm; l. of each arm-pl.: 5.6 cm.

Typological description and state of preservation: The lamp hanger has one suspension hook on top and three arm



Figure 24.14. A phylactery (by E. Erten, 2011).

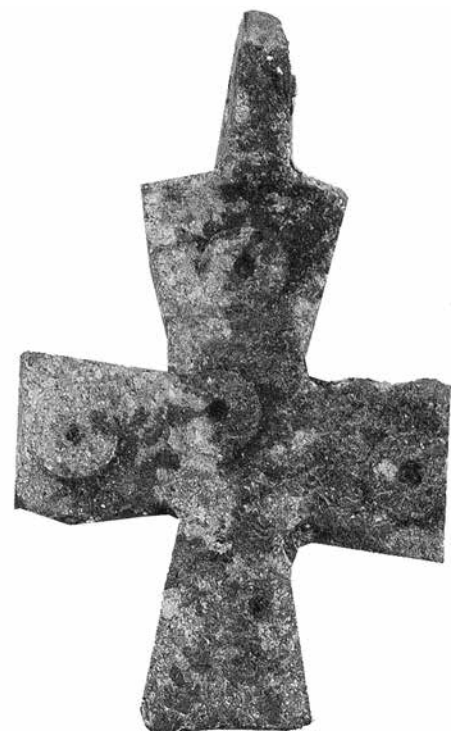


Figure 24.15. A pendant cross amulet (by E. Erten, 2011).

plates each connected to a hook to carry a three-handled glass lamp.

No. 3: Wick-holder (figs. 24.7-8).

Findspot: Monastery, Trench M3 (fig. 24.7).

Measurements: Max. w. of the strip: 0.7 cm; preserved l.: ca. 9.0 cm; max. diam. of disc with a hole at the centre from which the wicked pass through: 1.5 cm (fig. 24.7).

Typological description and state of preservation: Among the two types of wick-holders, the simpler type has a disc in the middle with a hole at the centre as represented by two examples (figs. 24.7-8) in this catalogue.

No. 4: Wick-holder (figs. 24.9-10).

Findspot: Theater, Trench T2.2011, -1 m. (fig. 24.9); Theater, Trench T2.2011, -36 cm (fig.24.10).

³¹ For a similar example: Gough 1985, p. 69, fig. 11, no. 3; Pülz 2020, p. 102, pl. 31, K 8.

Measurements: W. of strip: *ca.* 0.6 cm; diam. of cylindrical receptacle: *ca.* 0.3 cm, h. of cylindrical receptacle: *ca.* 2.0 cm.

Typological description and state of preservation: These two separate wick-holders catalogued under 'cat. no. 4' share the same Y-shaped common form with a cylindrical receptacle.

No. 5: Belt buckle (fig. 24.11).

Findspot: Monastery, Stone Basin.

Measurements: L: 4 cm; w.: 3 cm.

Typological description and state of preservation: A fragment of a cast belt buckle with concentric circle designs and a perforated decoration of a cross on its front side.

No. 6: Magic amulet – talisman (figs. 24.12.13).

Findspot: Sacrificial Area in the eastern Gorge on the slope of the *Acropolis*.

Measurements: H.: 5 cm ; max. w.: 3.7 cm.

Typological description and state of preservation: Ellipsoid amulet with two different embossed decorations on each side. On the obverse, a holy rider on his horse (an equestrian saint), killing a demon below. On the reverse, an evil eye at the centre and a Greek inscription (KVPIE BOHΘI) along with other symbols such as two crosses on each side of the evil eye, two lions facing each other, a bird, a snake, a sceptre and a scorpion.

No. 7: Phylactery (fig. 2.4.14).

Findspot: Theater, Trench T2.2011, –1.70 m.

Measurements: diam.: 0.5 cm; preserved L.: 2.0 cm; diam. of suspension loop: 0.5 cm.

Typological description and state of preservation: A fragment of a cylindrical phylactery, possibly with two suspension loops (one preserved) on top. The cylindrical tube suspended by a strap or a chain functions as a receptacle for the metal sheet scrolls to be carried around the neck.

No. 8: Cross amulet (fig. 24.15).

Findspot: Theater, Trench T2.2011, – 65 cm.

Measurements: H.: 2.8 cm; diam. of suspension loop: 0.6 cm.

Typological description and state of preservation: A cross amulet with a suspension loop and concentric circular designs on its surface.

Roman and Byzantine Metal Finds in the Museum of Amasra (Ancient Amastris) in Paphlagonia (Northwestern Turkey)

with an appendix

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Abstract: In this brief article 42 bronze and other finds of the Roman and Byzantine periods are presented that are being stored in the Museum of Amasra in ancient Paphlagonia. Chronologically the metal finds in Amasra consist of five major groups: Roman material, ‘The Gökbel Treasure’ – an Early Byzantine group of liturgical finds, rest of the Early Byzantine material, Middle Byzantine material and Late Byzantine-medieval material. Especially the Gökbel Treasure from the sixth/eighth century AD is important, as it is a unique group of liturgical metal works brought from a certain location in Paphlagonia. At the end of the article a Byzantine lead seal of the 10th/11th century AD is presented in an appendix.

Keywords: Vessels, implements, figurines, liturgical objects, lead seals, Roman period, Early Byzantine period, Middle Byzantine period, Late Byzantine period, medieval times, Amasra, Amastris, Bartın, Gökbel, Yenice, Karabük, Paphlagonia, northwestern Anatolia, Turkey.

Özet – Amasra Müzesi’ndeki Roma ve Bizans Dönemi Metal Buluntular: Bu kısa makalede Amasra Müzesi’nde saklanan ve tarafımdan 2007 yılında Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izinleri ile çalışılmış olan Roma ve Bizans Dönemleri’ne ait 42 adet bronz ve diğer metallere buluntular tanıtılmaktadır. Kronolojik olarak Amasra Müzesi’ndeki metal buluntular beş ana gruptan oluşmaktadır: Roma Dönemi malzemesi, Erken Bizans Dönemi’ne ait Gökbel Köyü buluntuları, diğer Erken Bizans Dönemi malzemesi, Orta Bizans Dönemi malzemesi ve Geç Bizans Dönemi-Ortaçağ malzemesi. Özellikle İ.S. 6.-8. yy.’lara ait Gökbel Köyü buluntuları, Paphlagonia’nın belli bir noktasından getirilen eşsiz bir liturjik metal eserler grubu olduğu için önemlidir. Makalenin sonundaki bir ekte Erken Bizans Dönemi’ne ait bir kurşun mühür sunulmuştur.

Anahtar Kelimeler: Kaplar, aletler, heykelcikler, liturjik objeler, kurşun mühürler, Roma Dönemi, Erken Bizans Dönemi, Orta Bizans Dönemi, Geç Bizans Dönemi, Ortaçağ, Amasra, Amastris, Bartın, Gökbel Köyü, Yenice, Karabük, Paphlagonia, Kuzeybatı Anadolu.

Research question, aims and methodology

Very little is known about ancient Greek, Roman and Byzantine bronze implements in ancient Paphlagonia and Pontus in the southern Black Sea littoral. With its homogenous collection, the bronzes of the Museum of Amasra in coastal Paphlagonia is an appropriate starting point for research in this area, the northern part of the Anatolian peninsula (**map 25.1**). The museum houses a large collection of ancient bronzes, all of which will be presented here. Our aim is to present these objects in detail and to connect them with historical events in the region. Our methodology involves comparing these objects with the previously published examples in the literature.

Introduction – Amasra and its museum

Amasra is a small Black Sea port town in the province of Bartın in northwestern Turkey, known as Amastris (Ἀμαστρίς) between the fifth century BC. and 15th century AD. In classical antiquity and medieval times it was a significant harbour city in the coastal part of Paphlagonia. The site is only known from previous reports and field surveys, among others those by S. Hill and J. Crow in 1988–1991, who focused especially on the Byzantine fortifications of the site.¹

¹ Cf. Crow 2017. Also cf. Marek 1989.



Map 25.1. Places in northern Asia Minor and elsewhere referred to in the text (by S. Pataçı, 2012).

A medium-sized archaeological and ethnographic local museum is located in Amasra, the foundation of which is going back to 1955. In 1969 the collection of this first museum moved to a former primary school building. In 1982, it was transferred to its current location, which was originally an Ottoman naval school, construction of which began in 1884, but was left unfinished. Only the epigraphic (by C. Marek) and numismatic collections (by S. Ireland) of the museum are known in the archaeological literature, and the bronze collection remains almost completely unpublished.

Study material

Chronologically the metal finds in Amasra consist of five major groups: Roman material, “the ‘Gökbel Treasure’” – an Early Byzantine group of liturgical finds, the rest of the Early Byzantine material, Middle Byzantine material and Late Byzantine-medieval material. The Gökbel Treasure from the sixth/eighth century AD is especially important, as it is a unique group of metal works brought from a certain location in Paphlagonia.

The museum possesses at least 42 Roman and Byzantine metal objects, most of which were sold to Amasra by local antique dealers from the provinces of Bartın, Zonguldak

or Karabük (territories of ancient Paphlagonia) beginning in 1971. In this paper no excavated metal find exists from the collections of Amasra. Only two objects from Paphlagonia have known provenances: no. 6 is from the village Kazpınarı in Amasra and no. 11 originates from Devrek, *ca.* 90 km southwest of Amasra. Additionally, cat. nos. 9 and 10, two bronze figurines of the Roman period, originate from Besni in the province of Adıyaman, in the territories of Roman Commagene. The rest of the objects most likely originate from various parts of ancient Paphlagonia. It is, however, also probable that their alleged findspots have been adduced by the sellers for the pieces of which the seller wanted to hide their true origin.

At the end of the article a Byzantine lead seal of the tenth/11th century AD is presented in an appendix.

Catalogue – Metal finds of the Roman period

Cat. no. 1: bronze *patera* (figs. 25.1a-b)

Acc. no. 407.1.18.A68.

Provenance. It originates from Devrek, Roman and Byzantine Dadybra, 56 km south of the province of Zonguldak and *ca.* 90 km southwest of Amasra, a minor site in Paphlagonia. It was found in a grave in the grounds of the Second Turkish Gendarmerie Training Battalion



(a)



(b)

Figure 25.1a-b. A bronze patera (by E. Lafli, 2007).

Commandary in Devrek when the construction of a water tank was carried out in the area of Solucan Değirmeni within the battalion in 1968. Several grave goods were unearthed in this sepulchral assemblage, e.g. cat. no. 11 below (*i.e.* a lock plate with two suspension chains), a terracotta lamp with an depiction of Athena (acc. no. 392.1.3.A68), a polished mirror (acc. no. 406.1.17.A68), a double-handled glass cup (acc. no. 331.2.5.A71) and a glass bowl (acc. no. 332.2.6.A71) all of which are housed in the Museum of Amasra and were published by G. Karauğuz in 2008 as an assemblage.

State of conditions. Undamaged.

Measurement. Diam. 17.5 cm.

Description. Patera with a thickened rim, slightly curved body, long flat ring bottom decorated with relief circles,



Figure 25.2. A bronze vessel (by E. Lafli, 2007).

perforated and horizontal handle as well as suspension hole in the shape of a 'keyhole'. It corresponds to some examples from Pompeii in Italy.²

Comparanda. Tassinari 1993, pl. at p. 370 and 361, no. 1760.

Dating. First century AD.

Reference. Karauğuz 2008, p. 56, p. 62, fig. 5.

Cat. no. 2: bronze vessel (fig. 25.2)

State of conditions. Undamaged.

Description. Rounded, stretched out rim, neck with narrow throat, ovoid body, flat base.

Comparandum. Similar to Tassinari 1993, no. 4013.

Dating. First century AD.

Cat. no. 3: Handle of a mirror (fig. 25.3)

State of conditions. Undamaged.

Description. Spear-shaped disc support and stylised bird-headed side arms. Baluster handle with swelling collars and a terminal knob. A north Italian production?

Comparanda. Lloyd-Morgan 1981, p. 37. Two samples in Sardis: Waldbaum 1983, nos. 650 and 652.

Dating. First century AD.

Cat. no. 4: strigil (fig. 25.4)

State of conditions. Undamaged.

Description. Curved blade with bent handle.

Dating. First/second century AD.

² E.g. Tassinari 1993, acc. no. 6881.



Figure 25.3. A handle of a mirror (by E. Lafli, 2007).



Figure 25.4. A strigil (by E. Lafli, 2007).

Cat. no. 5: Handle in form of a black child (figs. 25.5a-b)

State of conditions. Half of the head is broken diagonally and missing.

Description. A child's head, bent down with a hair style inspired by Hellenistic models and a transverse band, supports a floral composition, a bush of leaves surmounted by a bud. His hair is characterised by long locks, flat and curved. His braided hair could indicate that this was a representation of a slave. The portrait is hollow and in the lower area is an opening.

Comparanda. Cf. a child's portrait from Augustan period in the Archaeological Museum of Badajoz in southwestern Spain with two more examples from France and Switzerland: Ojeda 2018 (figs. 25.5c-d).

Dating. Late second century AD.

Reference. Patacı and Lafli 2015, p. 321, fig. 8 (picture only).

Cat. no. 6: Eros figurine (fig. 25.6)

Acc. no. 558.4.1.A80.

Acquisition name and date. Gift by Mr Arif Yılmaz, village headman of Kazpınarı, on May 7, 1980.

Provenance. It originates from Kazpınarı, a village in Amasra.

Measurements. Max. h. 4.5 cm; w. 1.9 cm.

State of conditions. Legs and arms fragmented.

Description. Figurine standing, naked; the edge of a mantle is resting on the left shoulder. His hair falls on



Figure 25.5a-b. A handle in form of a black child (by E. Lafli, 2007).



c



d

Figure 25.5c-d. A child's portrait from Augustan period in the Museo Arqueológico Provincial in Badajoz in southwestern Spain, acc. no. 4471 (by David Ojeda, 2018; © Museo Arqueológico Provincial de Badajoz).



Figure 25.6. An Eros figurine (by E. Laflı, 2007).

the sides of the face. The right arm was raised, perhaps to support an object (*lampadophore*-lambearer?).
Dating. First/second century AD.

Cat. no. 7: female figurine (fig. 25.7)

Acc. no. 320.1.1.A71.

Acquisition name and date. Purchased on December 31, 1971.

Measurements. Max. h. 9 cm; w. (between two arms), 12.5 cm; th. 2.5 cm.

State of conditions. Fragmented.

Description. Upper part of a female figure, whose dress does not cover the shoulders. Voluminous hair with large curls around the face. The bare arms are strained; the right is leaning towards the top of an oblique rod that is broken, from which two bands descend. Through the iconography it is not clear which deity or personality is depicted.

Dating. First/second century AD, or perhaps a modern counterfeit.

Cat. no. 8: Eros figurine (fig. 25.8)

Acc. no. 453.11.1.A73.

Acquisition name and date. Purchased from Mrs Rukiye Uzun on November 12, 1973.

Measurements. Max. h. 4.3 cm; max. w. 3.7 cm.



Figure 25.7. A female figurine (by E. Laflı, 2007).



Figure 25.8. An Eros figurine (by E. Laflı, 2007).



Figure 25.9. An animal figurine (by E. Lafli, 2007).

State of conditions. The lower part is missing. *Description.* Eros with outstretched wings and frontal pose. He holds an unidentifiable object before his body.

Dating. First/second century AD.

Cat. no. 9: Eros head

Acc. no. 607.3.1.A82.

Acquisition name and date. Purchased from Mr Mehmet Ertaş on February 15, 1982.

Provenance. It originates from Besni in the province of Adiyaman, in the territories of Roman Commagene.

Measurements. Max. h. 2.7 cm; w. 2.0 cm; th. 1.0 cm.

State of conditions. Only the head remains, but damaged (nose etc.).

Description. Slightly bent to the left, swollen hair with large curls.

Comparandum. For an Eros head from Ödemiş *cf.* Lafli 2015–2016, p. 121, pl. 15, no. 4.

Dating. First/second century AD.

Cat. no. 10: Animal figurine (fig. 25.9)³

Acc. no. 599.1.1.A82.

Acquisition name and date. Purchased from Mr Mehmet Ertaş on February 15, 1982.

Provenance. It originates from Besni in the province of Adiyaman, in the territories of Roman Commagene.

Measurements. Max. h. 3.1 cm; w. 3.9 cm; th. 1.4 cm.

State of conditions. The end of the animal's tail is missing.

Description. Ram with an unidentifiable object on its back and docked tail, on a flat base.

Comparandum. Another representation from Cyprus, larger and more detailed, is stored in the Cesnola Collection in the Metropolitan Museum of Art, and has been dated between 310 BC. and AD 330.⁴ For a similar example from Adana *cf.* also Lafli and Feugère 2006, pp. 46 and 97, fig. 29, no. 76.

Dating. First/third century AD.

³ A further animal figurine with the acc. no. 316.3.17.A.64 is indicated as 'by clay' in the inventory which is not seen by myself and therefore cannot be concretized.

⁴ Karageorghis 2000, p. 284, no. 463.

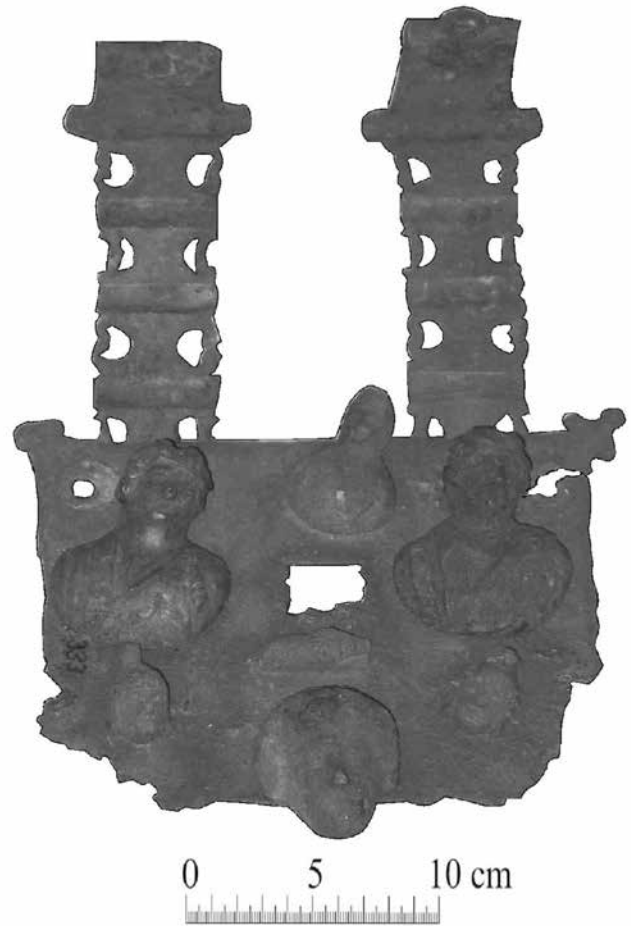


Figure 25.10a. A lock plate with two suspension chains (by E. Lafli, 2007).

Cat. no. 11: lock plate with two suspension chains (fig. 25.10a)

Acc. no. 333.2.7.A71.

Provenance. Same as cat. no. 1 above.

Measurements. Plate – max. h. 9.2 cm; w. 11.8 cm; th. 0.2 cm; appendix – max. h. 9.2 cm; w. 11.8 cm; th. 0.2 cm.

State of conditions. Damaged at the edges. Oxidised and must be conserved.

Description. Rectangular plate with appendixes at the corners (one in the upper right corner intact) and four holes for the mounting studs to the wooden support which are disappeared. One of them remains intact in the top left and another damaged one is still present at the upper right. Probably a jewelry box or symbolic-ceremonial box. At the centre a fragment rectangular hole for the key. Below the keyhole both hands crossed in the gesture of *dextrarum iunctio*. In the central part of the plate two semicircular identical busts of Menades with small animal figure leaned to body. Above, at the centre another veiled bust, placed obliquely. At the bottom centre, head with bushy hair held back by a headband or diadem with roses in relief (Dionysus?). Among the major busts protrude from the bottom two heads, probably two Attis with Phrygian cap, poorly recognizable. Unusual and completely lacking in the specimens of the European part of the Roman Empire, the chain to which the plaque is hung. It is formed by identical pieces arranged in series.⁵

⁵ For this exclusive type see Gáspár 1986.

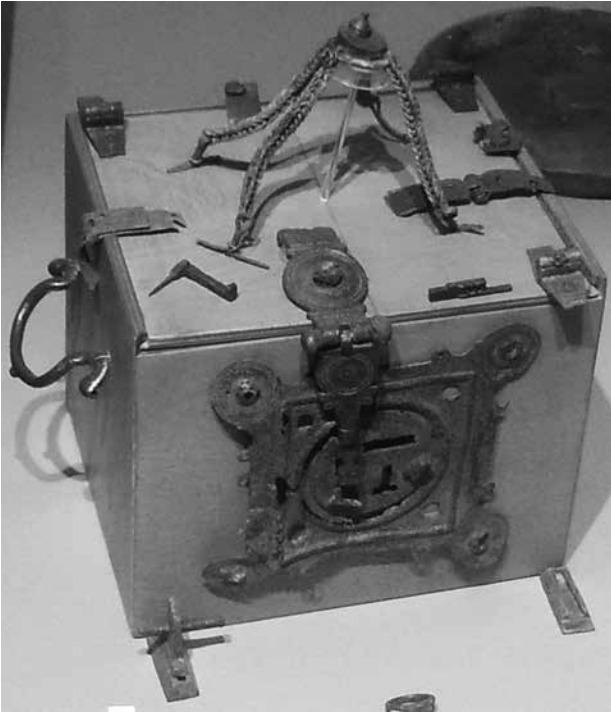


Figure 25.10b. A rebuilt box in the Museum of Anatolian Civilisations in Ankara (by E. Lafli, 2007).

Comparandum. Very few lock plates and wooden boxes are known in the Roman Asia Minor; *cf.* a rebuilt box in the Museum of Anatolian Civilisations in Ankara (fig. 25.10b).

Dating. First century AD.

Reference. Karauğuz 2008, p. 56, p. 61, fig. 3 (misinterpreted as an ‘armor accessory’).

Cat. no. 12: dice game (fig. 25.11)

State of conditions. Damaged at the surface.

Description. Although rare, Roman dice made of bronze are not unknown. Some of them appear frequently on antiques market, *e.g.* Christie’s sale 6060, lot 297. Their existence in the archaeological literature of Turkey is, however, rare.

Dating. Roman period.



Figure 25.11. A dice game (by E. Lafli, 2007).



Figure 25.12. A sewing needle (by E. Lafli, 2007).

Cat. no. 13: sewing needle (fig. 25.12)

Acc. no. 235.

State of conditions. Undamaged.

Description. Bronze needles for sewing are very common in all periods; the eye of this example from Amasra is elongated, perhaps to fit somewhat larger wires.

Dating. Roman period.

“The ‘Gökbel Treasure’” an Early Byzantine group of liturgical finds from the village of Gökbel in Paphlagonia

In Turkey and the rest of the eastern Mediterranean, a large number of Early Byzantine church treasures have been found, but most of them have been separated from their exact findspot.⁶ A minor group of mostly copper-

⁶ In the scholarly literature most significant ones are the Sion Treasure at Dumbarton Oaks, the Attarouthi Treasure at the Metropolitan Museum of Art and First Cyprus Treasure at the British Museum.

alloy liturgical objects originates from the village Gökbel, 6 km from Yenice in the province of Karabük, which came into the inventory of the Museum of Amasra on August 14, 1974. The so-called Gökbel Treasure is a varied, well-protected group of liturgical objects, church furnishings and their fragments. As their measurements, state of preservations and material seem to be similar to each other, most of them probably originated together from the same context. Archaeologically only the *tumulus* of Hamas Kıranı (or Hamazkıralı) is known from the village of Gökbel, which is an upland place (in Turkish ‘yayla’) located between the Roman and Byzantine Paphlagonian cities of Hadrianopolis in the south and Tium in the north. Almost no Byzantine ruins are known from this rugged site; but these liturgical objects were certainly among the possessions of an Early Byzantine church or monastery in this part of Paphlagonia.

The Gökbel Treasure is composed of 12 different objects, all made of various metals. It includes a hexagonal copper-alloy censer, two suspension fragments of a censer, a disc of a suspension unit, two crosses as part of a chain (for a *polykandelon*?), three lower parts of a circular *polykandelon*, a belt, a further belt or flat sheathing and a last censer, the origin of which is unclear. Most of the objects in the treasure are unique, of good quality and in good condition. Some of their surfaces are worked with decoration in relief (*repoussé*) and engraved detail.

Generally these finds belong to a period between the sixth and eighth century AD. Most of these objects seem to have been created in the sixth century AD and remained

in use for one or two centuries. Noteworthy is the fact that some typological features of the censers appear identical, perhaps attributable to a single workshop, possibly in Constantinople.

As Paphlagonia fell to the armies of Islam in the early eighth century, this group of material may have been deliberately hidden from the Arab invaders of the early eighth century AD. They were probably buried by church leaders in haste in a protective container at a moment when the Byzantine army was retreating from attacks on the region. Some pieces are bent or crushed, suggesting that they were saved to be melted down and their metal reused. Therefore, the Byzantine imperial authorities were most likely requisitioning bronze from the church in order to mint coins for paying the wages of the emperor’s army.

Cat. no. 14: copper-alloy censer (figs. 25.13a-b)

Acc. no. 462.3.3.A474.

Measurements. Max. h. 8.3 cm; w. 10.4 cm; th. 0.5 cm.

State of conditions. Basin undamaged. Two chains are missing.

Description. Basin of the incense burner formed by six semicircular protruding parts, resting on three claw-feet; each part is decorated with an engraved cross on the outside. Linear rim with a sphere in the centre of each protrusion. The suspension unit is constructed of twisted S-shaped links, attached to a central distributor, and a hook termination which is in the form of a three-lobed triangular plate (perforated at the other end) with an engraved palm formed in *repoussé*. Openwork.



a



b

Figure 25.13a-b. A copper-alloy censer from Gökbel (by E. Lafli, 2007).

The censers were used for the Divine Liturgy, or Eucharist, in which Christians take consecrated wine and bread in commemoration of the Last Supper and Christ's death. They were also used to spread the smoke and the aroma of smoldering incense around the altar and other areas of a church where a religious ceremony would take place. This would cleanse the air of malevolent spirits and purify it for Christian celebration. In Early Byzantine Christianity the censer thus had practical and symbolic purposes.

Dating. Sixth/eighth century AD.

Cat. no. 15: suspension fragment of a copper-alloy censer (fig. 25.14)

Acc. no. 468.3.9.A74.

Measurement. Max. h. 5 cm.

Description. Chain with a hook termination which is in the form of a three-lobed triangular plate (perforated at the other end) with an engraved palm in repoussé.

Dating. Sixth/eighth century AD.

Cat. no. 16: suspension fragment of a copper-alloy censer (fig. 25.15)

Acc. no. 467.3.8.A74.

Measurement. Max. h. 4.0 cm.

State of conditions. Undamaged.

Description. Very similar to no. 15. Pitarakis 2006, cat. no. 597 (form type I).

Dating. Sixth/eighth century AD.

Comparanda. Ephesus (Pülz 2020, K29, pl. 35, text 91; tenth/11th century).

Cat. no. 17: disc of a suspension unit of a censer (fig. 25.16a)

Acc. no. 469.3.10.A74.

Measurement. Diam. 4.5 cm.

State of conditions. Undamaged.

Description. Middle part of a censer's chain. Disc with two hooks at the ends and thickened rim; in the front four branches, arranged as hearts, form a sort of rosette combining with other floral motifs all formed in repoussé. Whole ornament is bordered by a circle. The back is unadorned. Compared to other typological features of the Amasran censers of the same shape, it differs from them.

Comparandum. A further disc from Boyabat in Sinop, in eastern Paphlagonia (figs. 25.16b-c).

Dating. Sixth/eighth century AD.

Cat. no. 18: cross, part of a chain (for a polykandelon?) (fig. 25.17)

Acc. no. 460.3.1.A74.

Measurements. Max. h. 14.5 cm; w. 13 cm.

State of conditions. Undamaged, but with corrosion.

Description. Greek cross with equal arms, two hooks, one upper and one lower.

Dating. Sixth/eighth century AD.

Cat. no. 19: cross, part of a chain (for a polykandelon?) (fig. 25.18)

Acc. no. 361.3.2.A74.



25.14



25.15

Figures 25.14-15. Two suspension fragments of a copper-alloy censer from Gökbel (by E. Laflı, 2007).

Measurements. Max. h. 18.5 cm; w. 14.5 cm.

State of conditions. Undamaged.

Description. Greek cross with equal arms, two hooks, one upper and one lower. At the top a ring, and below it part of a chain.

Dating. Sixth/eighth century AD.

Cat. no. 20: lower part of a circular polykandelon with open work decoration (fig. 25.19)

Acc. no. 464.3.5.A74.

Measurements. Diam. max. 25.5 cm; diam. bowl 16.0 cm; h. 5.0 cm.

State of conditions. Fragmented and bent.

Description. There remains only the lower disc, formed by the central curve and a wide rim of a perforated polykandelon. Six holes for the insertion of glass lamps around the rim and one in the middle of the plate. Decorative motifs consist of vegetal and geometric scrolls.

Dating. Sixth/eighth century AD.

Cat. no. 21: lower part of a circular polykandelon with open work decoration (fig. 25.20)

Acc. no. 465.3.6.A74.

Measurements. Diam. max. 25.0 cm; diam. bowl. 16.0 cm; h. 5.0 cm.

State of conditions. Undamaged.

Description. Typologically it is very similar to no. 20.

Dating. Sixth/eighth century AD.



Figure 25.16a. A disc of a suspension unit of a copper-alloy censer from Gökbel (by E. Lafli, 2007).



Figure 25.16b-c. A further disc from Boyabat in Sinop, in eastern Paphlagonia (by E. Lafli, 2007).

Cat. no. 22: lower part of a circular *polykandelon* with open work decoration

Acc. no. 466.3.7.A74.

Measurements. Diam. max. 21.0 cm; h. 3.5 cm.

State of conditions. Only rim fragment is preserved.

Description. Similar to nos. 20–21.

Dating. Sixth/eighth century AD.

Cat. no. 23: belt (figs. 25.21a-b)

Acc. no. 464.3.6.A74.

Measurements. H. 3.2 cm; total w. 72.0 cm; w. of each plate 13.5 cm.

State of conditions. Undamaged.



Figure 25.17. A cross by iron, part of a chain (for a *polykandelon*?) from Gökbel (by E. Lafli, 2007).

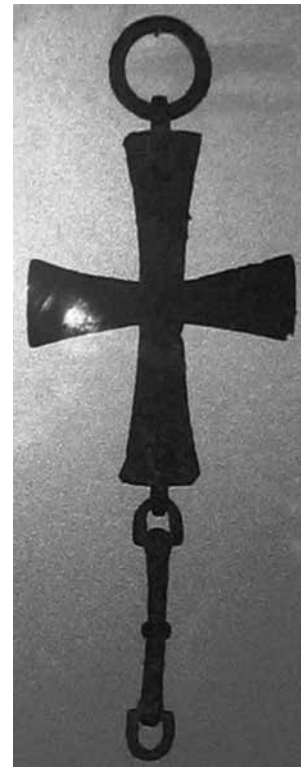


Figure 25.18. A cross, part of a chain (for a *polykandelon*?) from Gökbel (by E. Lafli, 2007).

Description. Five hinged plates and one with a grooved disc as a buckle on which two central concentric circles were engraved. Band-shaped belts with central medallions are known from Late Antiquity and appear frequently in the First Cyprus Treasure at the British Museum.

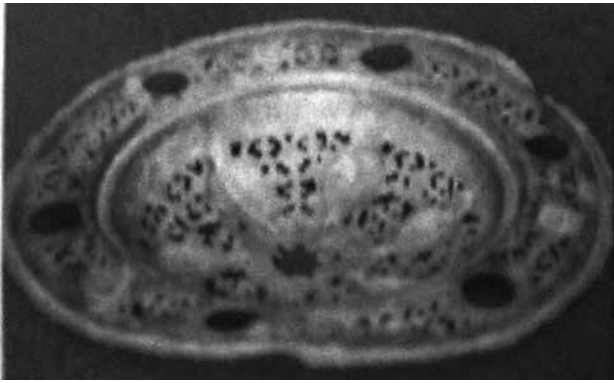
Dating. Sixth/eighth century AD.

Cat. no. 24: belt or flat sheathing? (fig. 25.22)

Acc. no. 470.3.11.A74.

Measurements. Max. h. 5.5 cm; w. 4.3 cm; th. 1.6 × 0.9 cm.

State of conditions. Undamaged.



25.19



25.20

Figures 25.19-20. Two lower parts of a circular *polykandelon* from Gökbel (by E. Lafli, 2007).

Description. The exact findspot of these pieces in the church is unknown. They consist of ten metal strips of various sizes which perhaps formed a belt together. They may also have formed part of the decoration of the altar or even the walls of the sanctuary. They were originally hammered to a thickness of 0.9–1.6 cm.

Dating. Sixth/eighth century AD.

Cat. no. 25: copper-alloy censer (figs. 25.23a-b)

State of conditions. Damaged, some parts are missing.

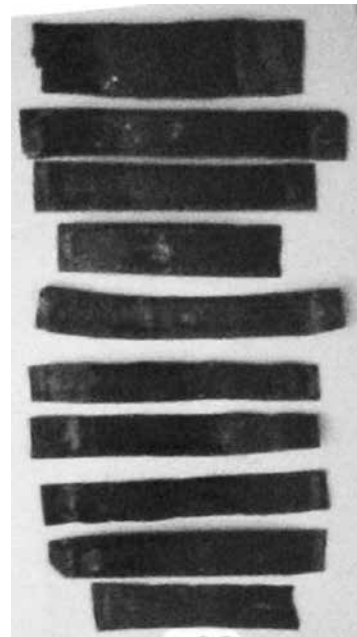


Figure 25.22. Belt or flat sheathing from Gökbel (by E. Lafli, 2007).

Description. Copper-alloy censer with hemispherical body resting on three claw-feet. Triangular rim. The suspension unit is constructed of twisted S-shaped links, attached to a central distributor and a hook termination in the form of a three-lobed triangular plate (perforated at the other end) with an engraved palm formed in repoussé. Openwork.

It is not certain if this censer also belongs to the Gökbel group, but typologically it is similar to other pieces from Gökbel.

Comparandum. The British Museum, acc. no. 1994.0610.13; and an unpublished example from the Museum of Yalvaç in Pisidia (figs. 25.23c-d).

Dating. Sixth/eighth century AD.



a



b

Figure 25.21a-b. A belt from Gökbel (by E. Lafli, 2007).



a



b

Figure 25.23a-b. A copper-alloy censer (by E. Lafli, 2007).

Other metal finds of the Early Byzantine period

Cat. no. 26: foot-shaped *signaculum* (fig. 25.24)

Acc. no. 710.1.1.A91.

Acquisition name and date. Purchased from Mr Zeki Erbay on July 1, 1991.



c



d

Figure 25.23c-d. A similar copper-alloy censer in the Museum of Yalvaç (by E. Lafli, 2020).

Provenance. It originates from Amasra.

Measurements. Max. h. 3.0 cm; w. 8.1 cm; diam. ring 3.3 cm; th. 0.7 cm.

State of conditions. Undamaged.

Description. Seal in the shape of the foot with ring handle. At the bottom an inscription with letters in relief



Figure 25.24. A foot-shaped *signaculum* (by E. Lafi, 2007).

ISIDVR, formed by a mixture of Greek and Latin (R) letters.

References. Lafi and Christof 2011, p. 55, no. 110; Buora and Lafi 2014, p. 271; <<http://artefacts.mom.fr/it/result.php?id=SIG-4006&find=SIG&pagenum=1&affmode=vign>>.

Dating. Fourth/sixth century AD.

Cat. no. 27: bronze weight (fig. 25.25)

State of conditions. Undamaged.

Description. Flattened cylindrical shape with curved wall. On the upper face, engraved and decorated in niello, is the letter N (=for *nomisma*), corresponding to the weight of about 4 g.

Dating. Fourth/sixth century AD.

Cat. no. 28: finger ring with an engraved bezel (fig. 25.26)

State of conditions. Undamaged.

Description. Bronze ring with large circular bezel (type Baldini Lippolis 1999, 1a) on which a stylised cross is engraved within a square around which there are oblique lines, probably an allusion to Golgotha.

Dating. Sixth/eighth century AD or perhaps 13th century (see Pülz 2020, type I, 8, p. 85, pl. 25, S 139 and ff.).

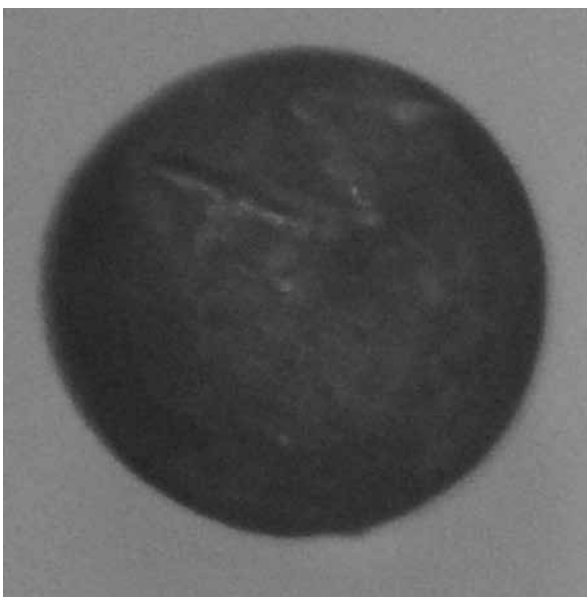


Figure 25.25. A bronze weight (by E. Lafi, 2007).



25.26



25.27

Figures 25.26-27. Two finger rings with an engraved bezel (by E. Lafi, 2007).

Cat. no. 29: finger ring with an engraved bezel (fig. 25.27)

State of conditions. Undamaged.

Description. Bronze ring with a large square bezel (type Baldini Lippolis 1999, 1.a) and a double frame. At the central square a stylised cross within a triple lozenge. This diamond-like ornament appears frequently in the mosaics of Byzantine churches and furnishings between the fifth and sixth centuries AD.

Dating. Sixth/eighth century AD.

Cat. no. 30: processional cross (fig. 25.28)

State of conditions. Damaged. One arm is missing and also at the top the circular appendixes are missing.

Description. Flat plate. At the central square four impressed orbicles, one for each side; the flaring arms terminating in projecting knobs at each tapering end. Arms with curved sides, widened towards the ends. At the end of each arm two circular appendixes with an orbicle at the



Figure 25.28. A processional cross (by E. Lafli, 2007).

centre. Those of the upper arm are missing. On the surface, groups of four orbicules on the arms. At the bottom, a tip for insertion into a wooden support.

Comparanda. K6–9I in Ephesus (see Pülz 2020, pl. 32, 6.9, colour 29, nos 7–9, text 86).

Dating. Sixth/eighth century AD.

Cat. no. 31: cross (fig. 25.29)

State of conditions. Undamaged.

Description. Cross with a ring at the bottom, perhaps a crowning of an object for liturgical purposes. Typologically the shape of the arms is similar to some *fibulae* of the Early Byzantine period. Perhaps part of a *polykandelon*?

Dating. Fifth/sixth century AD, according to Pülz 2020, pl. 53, K88.

Cat. no. 32: part of the hanging unit of a *polykandelon* (fig. 25.30)

State of conditions. Undamaged.

Description. Semicircular support with a central socket above and three below. Perhaps part of a *polykandelon*?

Dating. Sixth/eighth century AD.

Metal finds of the Middle Byzantine period

Cat. no. 33: Byzantine cross (figs. 25.31a-b)

State of conditions. Undamaged.

Description. Rounded arms, enlarged at the ends, with biconical section and knob on the top. Central part flattened with series of concentric grooves. At the base an attachment for fixing.

Dating. Fifth/sixth centuries AD, according to Pülz 2020, pl. 53, K88.

Cat. no. 34: pectoral cross (*encolpion*) (fig. 25.32)

State of conditions. It remains only the front valve with a damaged hinge.



Figure 25.29. A cross (by E. Lafli, 2007).



Figure 25.30. Part of the hanging unit of a *polykandelon* (by E. Lafli, 2007).

Description. Cast in two separate moulds and hinged at top and bottom. Maria orans is shown on the cross, his arms outstretched, wearing a long *colobium*, a sleeveless or short-sleeved tunic used as an ecclesiastical vestment a very impressively rich dress, showing decorated bands, perhaps embroidery. At the top is an inscription in Greek letters which are almost totally disappeared. The feet, represented on the same side, form a curious detail.

Dating. Late tenth/early 11th century AD.

Reference: Pülz 2020, pl. 40, K 49.



a



b

Figure 25.31a-b. A processional cross (by E. Lafli, 2007).



Figure 25.32. A pectoral cross (*encolpion*) (by E. Lafli, 2007).

Cat. no. 35: pendant cross (fig. 25.33)

State of conditions. Undamaged.

Description. Greek cross with equal arms. At the ends of the arms there are large circles with ribs on the edges and in the central part a similar but smaller circle.

Comparanda. Atanasov, Iotov and Mihajlov 2011, figs. 11, f and 12.

Dating. Ninth/tenth century AD.



25.33



25.34

Figures 25.33-34. Two pendant crosses (by E. Lafli, 2007).

Cat. no. 36: processional cross (fig. 25.34)

State of conditions. Damaged: only an arm (the lower?) remains; the others are broken.

Description. Flat plate. At the end of the arms are two engraved knobs with circles in the middle and at the edges. The sides of the arm are marked by a double engraved line, parallel to the edges. At the bottom within two etched circles is a large rosette of 16 petals, very damaged. The three arms are fragmented and reduced to stumps: the central has a large hole.

Dating. Tenth century AD, according to Pülz 2020, pl. 31, K7.

Cat. no. 37: pendant cross (fig. 25.35)

State of conditions. Undamaged.

Description. Cast in one piece with a suspension loop. The style of the endings, which are highlighted by external appendages (type Baldini Lippolis 1999, 10.a), appears from the sixth century AD onwards and was still in use until at least the 11th century, a period in which the



Figure 25.35a-b. A Byzantine cross (by E. Lafli, 2007).

specimens are richly decorated and enameled. The shape appears very often, e.g. in a tomb dating to the seventh century at Qal'at Sam'an in Syria.⁷

Comparandum. Ross 1965, cat. no. 157.

Dating. 11th century AD.

Cat. no. 38: Byzantine bracelets (fig. 25.36)

State of conditions. Undamaged.

Description. Series of four bracelets with open endings rounded, rectangular section. The first left is smooth, others have engraved decoration formed by line and hollow circles. In the third, from left, the engraved cross



Figure 25.36. Byzantine bracelets (by E. Lafli, 2007).

lines are arranged in groups of four and five and combine with other oblique lines.

Comparanda. Henning 2007, p. 696, nos. 207–209.

Dating. 11th century AD.

Cat. no. 39: pectoral cross (*encolpion*) (fig. 25.37)

State of conditions. It remains only the front valve, with damaged hinge.

Description. It depicts the Blessed Virgin Mary standing and veiled, in prayer, identified by the accompanying inscription (Μήτηρ). Very schematic, almost folksy drawing. Since the cross can be opened, it may have been used to hold relics.

Dating. 11th/12th century AD.

Metal finds of the Late Byzantine or late medieval period

Cat. no. 40: pin (fig. 25.38)

State of conditions. Bent.

Description. Pointed with a piriform head. Perhaps a medical implement with scoop designed as powder funnel?

Dating. Medieval age?

Cat. no. 41: small liturgical bell (fig. 25.39)

Acc. no. A/81 7 B.

Description. Bell with three vertical, pierced supports and an upper loop for gripping and hanging. The wall has a double bending with two deep horizontal grooves. Missing iron clapper.

Dating. Late Byzantine period or Post-medieval?

Conclusion

The bronze collection of the Museum of Amasra provides some new insights into bronze archaeology and ancient implement studies: there are multiple Eros figurines in bronze, which indicates the popularity of Eros figurines in (sepulchral?) contexts of Paphlagonian Amasris and its *chora* during the Roman period. A marble relief of

⁷ Kazanski 2003, p. 132, fig. 24.



Figure 25.37. A pectoral cross (*encolpion*) (by E. Laflı, 2007).



Figure 25.38. A pin (by E. Laflı, 2007).



Figure 25.39. A small liturgical bell (by E. Laflı, 2007).

Eros is also known from neighbouring Hadrianopolis in southwestern Paphlagonia.⁸ Furthermore, the handle in the form of a black child (no. 5) and the lock plate with two suspension chains (no. 11) are unique finds for Roman Asia Minor.

More than half of the pieces considered here show the marked liturgical character of the Early Byzantine period. Particularly, “the ‘Gökbel Treasure’” provides a new assemblage of liturgical finds from Anatolia, where most similar finds have not been published sufficiently. An exact date for the deposition of this treasure cannot be provided, but its findspot brings us new knowledge on the ecclesiastical landscape of the Early Byzantine Paphlagonia.

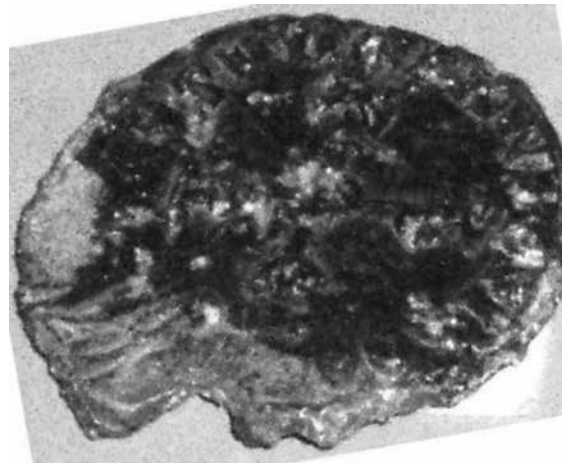
Appendix – A Byzantine lead seal

Cat. no. 42: lead seal (figs. 25.40a-b)

Acc. no. 364.3.15.A71.

Measurements. Diam. max. 2.4 cm; th. 0.4 cm.

State of conditions. A quarter of the seal has broken off.



a



b

Figure 25.40a-b. A Byzantine lead seal (by E. Laflı, 2007).

⁸ Laflı and Christof 2012, p. 16, n. 66, p. 31, fig. 54.

Ergün Laftı

Description. Obverse a cruciform monogram; reverse inscription in three lines †Γε|ωργ|ίου, translated as ‘of Georgios’.

Dating. 10th/11th century AD.

Notes and acknowledgments

This collection was studied with an authorisation granted by the Turkish Ministry of Culture and Tourism, General Directorate of the Cultural Monuments and Museums on July 4, 2007 and registered as B.16.0.K VM.200.11.02.02.14.01.222.11.(TA07.40/).116546. The necessary documentation was assembled in August 2007. All the photos were taken by the author in 2007, except figs. 5c-d which were provided by Mr David Ojeda, for which I would like to thank him sincerely.

Roman and Early Byzantine Metal Finds from Hadrianopolis in Paphlagonia (Northwestern Central Turkey)

with an appendix

Ergün Laflı

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Abstract: In this paper metal finds from Hadrianopolis, a site in southwestern Paphlagonia, modern Eskipazar in the Province Karabük (northwestern central Turkey) will be presented. Most of the 345 metal finds are bronze and from the Early Byzantine period (sixth/seventh century AD). Two Roman bronze figurines were also discovered. The two main groups of metal finds are Early Byzantine metal implements and iron nails. It has not been possible to fully determine the function and date of *ca.* 50 objects from the Early Byzantine period. A total of 268 iron nails with four main shapes and various sizes have been documented.

In the appendix two lead seals from Hadrianopolis will be presented in detail.

Keywords: Domestic implements, iron nails, Hadrianopolis, southwestern Paphlagonia, Eskipazar, Karabük, northwestern central Turkey, Early Byzantine period, Roman period.

Özet – Hadrianopolis'ten Roma ve Erken Bizans Dönemleri Metal Buluntuları: Aslında 2013 yılında Türkçe yayımlanmış olan bu makalede (bkz. Kara v.d. 2013), Karabük İli, Eskipazar İlçesi'nde yer alan ve Antik Çağ'da Güneybatı Paphlagonia'da bulunan bir yerleşim yeri olan Hadrianopolis Örenyeri'nde ele geçmiş metal buluntuları, bu kez İngilizce'ye çevrilerek bir kez daha tanıtılacaktır. Daha önce yayımlanmış olan söz konusu 345 metal buluntunun çoğu bronzdan olup, Erken Bizans (İ.S. 6. – 7. yy.'lar) Dönemi'ne aittir. Aralarında iki adet Roma Dönemi bronz figürin de mevcuttur. Araştırmanın iki ana buluntu grubunu Erken Bizans Dönemi metal aletler ve demir çiviler oluşturur. Yaklaşık 50'ye yakın metal objenin işlevini ve tarihlendirmelerini tam olarak belirlemek mümkün olmamıştır. Dört ana forma ve çeşitli ebatlara sahip toplam 268 demir çivi belgelenmiştir.

Ek 1'de ise 2006–2008 yılları arasında Hadrianopolis'te bulunan ve Amasra Müzesi'ne teslim edilen iki adet kurşun mühür ayrıntılı olarak sunulacaktır.

Anahtar Kelimeler: Ev araç gereçleri, demir çiviler, Hadrianopolis, Güneybatı Paphlagonia Eskipazar, Karabük, Orta Anadolu, Erken Bizans Dönemi, Roma Dönemi, demir çiviler, kurşun mühürler.

Research question, aims and methodology

Very few excavated metal finds have been published from ancient Paphlagonia and Pontus in the southern Black Sea littoral, in northern Turkey (**map 26.1**). Hadrianopolis, in southwestern Paphlagonia, offers us homogenous assemblages of Early Byzantine metals from a restricted time period between the early sixth century and late seventh century AD. Our aim is to present this material in detail and relate them to other material found at the site. Our methodology is mostly archaeological.

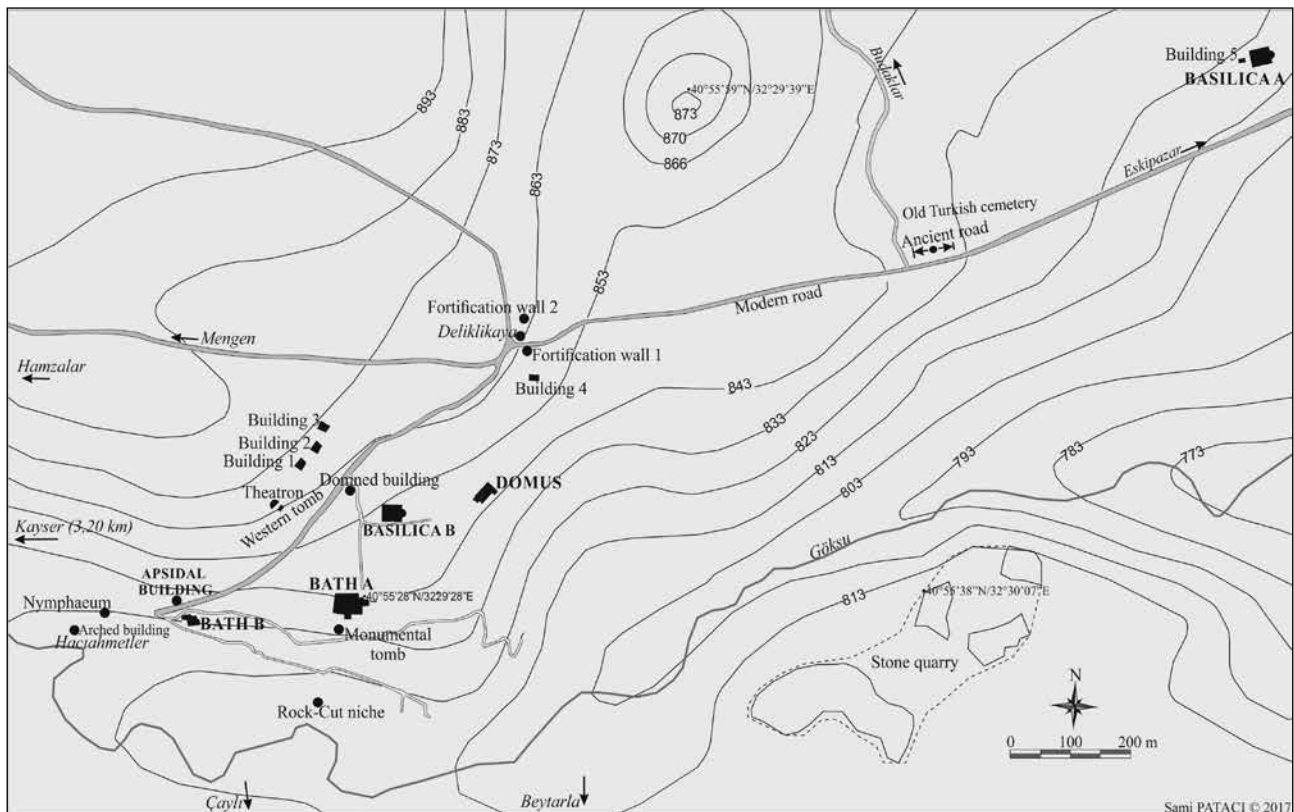
Study material

Excavations at this site have provided rich glass and metal assemblages. 343 metal finds were found during the field studies in Hadrianopolis between 2005–2008,¹ all of which will be presented below. None of the finds

¹ A small amount of finds were encovered during the 2003 rescue excavations in the Basilica B, done by the Museum of Ereğli in Zonguldak and today kept in the same museum. We only have some illustrations of these metal and other type of small finds, most of which seem to be jeweleries of Middle Byzantine period.



Map 26.1. Places in northern Asia Minor and elsewhere referred to in the text (by S. Patacı, 2020).



Map 26.2. Site plan of Hadrianopolis with all surveyed and excavated areas in 2008 (by S. Pataci, 2009).

were intact and most of them cannot be assigned to any known bronze category, as they are fragmentary. These objects are preserved in the Museum of Amasra today. The main excavation sites from which the finds were recovered are Baths A and the *domus* (cf. map 26.2 and table 26.1 below). These areas were used extensively in the sixth and seventh centuries and were suddenly abandoned in the first quarter of the eighth century. Two pieces of bronze (nos. 47–48) were found during the surveys we conducted in 2005 in Kimistene (Asartepe) outside of Hadrianopolis.

Among the metals recovered, bronzes are the most common group; there are also plenty of iron nails and a few copper objects. There are very few lead objects. No gold or silver has been found. It is said that a gold necklace was found in a grave in the 1970s and that this necklace was taken to the Museum of Çankırı; the Directorate of the Museum of Çankırı has, however, denied this rumor.

Among the metal finds, there are figurines for religious purposes, liturgical objects, jewelry, weights, appliques

Table 1. Findspots of Roman and Early Byzantine metals in Hadrianopolis and southwestern Paphlagonia as well as main metal finds

Findspots	Date	Numismatic evidence	Main sorts of metal finds
Baths A	First/19th century AD, majority sixth/seventh century AD	A coin of Justin I (AD 518–527); a coin of Justinian I (AD 527–565); a coin of Heraclius (AD 610–641); a coin of Constans II (AD 641–668); two anonymous <i>folles</i> (AD 976–ca. 1030/1035); a signed <i>folles</i> of Constantine X and Eudocia (AD 1059–1067) and a signed <i>folles</i> of Romanus IV (AD 1068–1071); a numismatic range between AD 518 to 1071	A bronze figurine, lead seals, iron nails, <i>polycandela</i> fragments, belt buckles, chains, bronze pendant, a lead weight, a disc weight, an iron arrowhead, iron hoops, appliqué panels, bronze thimble
Domus	Mid-sixth to mid-seventh century AD	A coin of Justinian I (AD 527–565) and four coins of Heraclius (AD 610–641); a numismatic range between AD 527 and 641	A bronze figurine, iron nails, metal vessel fragments, a <i>patera</i> , belt buckles
Basilica B	Sixth/ninth century AD	No coins	iron nails, bronze jewellery (earrings, finger rings), a cross pendant, chain locks related to <i>polycandela</i>
Kimistene, temple podium at Acropolis	First/early seventh century AD	No coins	nos. 47–48 (unidentified objects)

produced for pots and pans, some other implements and abundant iron nails.

Chronologically, these objects are focused between the Roman Imperial period (especially the second, third and fourth centuries AD) and the Early Byzantine period (sixth and seventh centuries AD); however, the Early Byzantine period is much more diverse and dense in terms of material.

A group of eighth/ninth century AD ornaments and a cross were discovered in graves 1, 2 and 3 during the rescue excavations at Basilica B in 2003 by the local Museum of Ereğli in Zonguldak (nos. 24, 26–28 and 30–31). These burials were placed above the mosaic floor at Basilica B, perhaps at a time of crisis (due to Arab raids around AD 720s?). These finds are stored in the museum, but they have never been studied.

Some of these diagnostic pieces, as well as most of the nails, were conserved and restored at the Başkent Technical College of the University of Ankara between 2007 and 2009. These materials were delivered to the Museum of Amasra in 2009. Most of the iron nails are stored in a container which was donated by the Turkish State Water Supply Administration (DSİ) in June 2007, was placed in an area close to the *Domus*, and should still be there.

A preliminary report on the metal finds from Hadrianopolis has already been appeared in the Turkish language.²

Roman bronze figurines

The earliest metal finds recovered in Hadrianopolis are two bronze figurines from the second/early third century (nos. 1 and 2). These figurines prove that the Early Byzantine city centre of Hadrianopolis was actually a cemetery area during the Roman period. Apart from these two objects, no other bronze material belonging to the pagan culture from the Roman period was found.

Early Byzantine metal implements

It has not been possible to fully determine the function and date of *ca.* 50 objects from the Early Byzantine period; however, most of the objects belong to a period between AD 500 and 650. The city is not very rich in bronze pots and pans. The best preserved example is a *patera* (no. 3). Such examples are common in Paphlagonia. In addition, at least five bronze handles and the bottom part of a flat bronze vessel were found. Two *polycandelon* components (nos. 8–9) prove to us that the Early Byzantine glass lamps, of which we have found numerous examples, were often combined with metal components. The closest typological analogues to no. 8 were found in Israel (**fig. 26.8d**). An iron door latch mechanism (no. 17) is a new example of Early Byzantine door locks, about which we do not know much

in Asia Minor. As wood was a common material in Early Byzantine architecture of Hadrianopolis and Paphlagonia, such iron door instruments were popular.

Three belt buckles from the sixth century were found (nos. 18–19 and 21). In addition, a decorated piece belonging to a belt was found (no. 20). There were also found few metal objects used as jewelry in the sixth and seventh centuries: a pendant (no. 22), a lead bead (no. 23) and an earring (no. 25), which could also be a piece related to a *polycandelon*. It has been observed that sometimes glass beads (especially in green colour) are used as earring ornaments. Two bronze disc weights (nos. 34–35) as well as a lead weight (no. 36) indicate that units of measurement were also frequently used in Early Byzantine Hadrianopolis. The presence of an iron arrowhead (no. 37) and a thimble fragment (no. 17) also increased the variety of metal tools. Decorated or plain plates (*e.g.* no. 42) have been uncovered which, we think, were used in combination with furniture. Apart from all these, a few objects related to harness that were probably used for animals have also been found (nos. 39–41).

Iron nails

A total of 268 Early Byzantine iron nails from Hadrianopolis, the most common group of metal finds in the site, will be presented in detail in below.

In the appendix two lead seals from Hadrianopolis will be presented in detail.

Conclusions

Early Byzantine bronze and iron materials from Hadrianopolis constitute a well-dated group dating to between the first half of the sixth and the late seventh century AD. They consist of mostly liturgical items used for churches, household items and pieces belonging to daily life, which are mostly undecorated. In addition, Hadrianopolis is an important find centre with its rich nail examples and typologies. Similar Early Byzantine metal implements belonging to religious and daily life in a provincial city in Asia Minor were also found in Amorium and Sardis. Most of these instruments were probably locally produced in the southern Black Sea littoral, which is rich in metals.

More detailed information about the material will be given in the following catalogue.

Catalogue – Figurines

Cat. no. 1: left arm of a probable deity figs. 26.1a-b

Acc. no. HP07/04, Museum of Amasra.

Max. l 11.8 cm; max. w. 2.5 cm; max. th. 2.6 cm; w. hand 2.5 cm; w. fingers 0.2 cm.

Baths A, Room 11A, on the bottom level; in a pile of debris close to the mosaic floor on the western side of the room. It was found mixed with Early Byzantine materials under the 3 m. fill on the bath. It is not a stratigraphic find in

² Kara *et al.* 2013.



Figure 26.1a-b. Left arm of a possible deity (by E. Lafli, 2008).

this building, which is mixed during agricultural levelling. Found on August 18, 2007.

Extremely well preserved. Some corrosion is observed on the surface.

The arm belonging to a young and muscular body (Hercules, Ares?) is rendered in great detail. The figure was probably holding a spear in the clenched palm. The metal piece, which probably belongs to a figure 30 cm tall, is solid. It looks like a real work of art with an excessive workmanship.

Comparandum. Lafli and Feugère 2006, p. 55, p. 100, fig. 32/2a (a Mars from the Museum of Hatay in Antioch). Second century AD.

References. Kara *et al.* 2013, p. 176; and Lafli and Gürler 2015, p. 71, fig. 31a.

Cat. no. 2: eagle standing on the antlers of a deer protome or on a bucranium figs. 26.2a-d

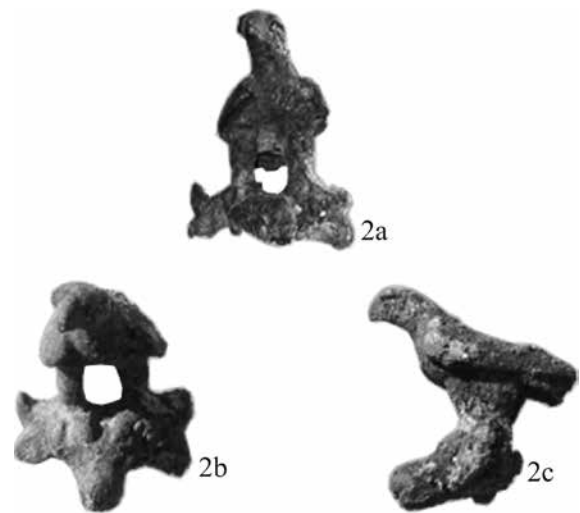
Acc. no. HP07/02, Museum of Amasra.

Max. h. 4.0 cm; th. deer head 1.1 cm; h. bird 2.8 cm; w. bird 3.4 cm.

Domus, top-soil in room 6, upper excavation level, right next to the southern wall of the building (just below the topsoil). Found on July 19, 2007.

Cast solid using a mould. It has been well preserved. Intact except for the right horn, most of which is missing. Corroded. Green-brown patina all over.

Perhaps the figure was set on a small rectangular base which is now missing. The eagle is depicted frontally and symmetrically. The wings are held out to the sides with the tips curving down and meeting behind the tail, leaving an oval gap between the sides of the eagle and the inner edge of each wing. The deer's head or *bucranium* is moulded very cursorily, its features rendered schematically with accentuated ears projecting to the sides and two pointed, slightly curved horns. This type of figurine has been mostly interpreted in relation with the cult of Jupiter Dolichenus, whose worship found special favour among the Roman military and had a mystery cult during the second and third centuries. Jeanne Peppers calls the combination of the two animals 'a Dolichene couple', the eagle symbolising the god, the goat his consort, Juno Dolichena. The type is common throughout Asia Minor as a votive offering (figs. 26.2e-f) or as a decorative attachment to a vessel or other



2d

Figure 26.2a-d. An eagle standing on the antlers of a deer protome or on a *bucranium* (by E. Lafli, 2008).

object. Such synchronisations of the gods represented in this type of combined animal figurines are known from Cilicia and southeastern Anatolia.

It may be an object that emerged from some Roman period tombs that were spread around the *Domus* and mixed into the rubble of this building. This cult object may also be related to Roman soldiers.

Comparanda. Lafli and Feugère 2006, 48 nos. 94–5 figs. 27–30; Lafli 2015–2016, p. 124, pl. 15: 12; Peppers 1980, pp. 176–80, fig. 4; Comstock and Vermeule 1971, nos. 164, 167; Mitten and Doeringer 1967, no. 271; Popa and Berciu 1978, pl. 13: 1; Richter 1956, pl. 18F: 21; Toynebee 1973, figs. 120–1.

Second century.

References. Kara *et al.* 2013, p. 177; and Lafli and Gürler 2015, p. 71, fig. 31b.

Vessel fragments

Cat. no. 3: a patera figs. 26.3a-b

Museum of Amasra.



Figure 26.2e. A bronze figurine from the Museum of Silifke in Cilicia (by E. Lafli, 2007).



Figure 26.2f. A bronze figurine from the Museum of Milet in Ionia (by E. Lafli, 2011).

Max. h. 9.0 cm; th. 0.5 cm; diam. 24.5 cm (top); diam. 12 cm (bottom); base h. 3 cm; stem l 16 cm.

Domus, top-soil in room 4 close to the southern wall. Season 2007.

One-third of the vessel's handle is preserved, and the remaining part is in fragments. Conserved and restored.

It is a long-handled *patera* with a deep and high cup. It has a high base.

Late fifth/early sixth century AD.

References. Kara *et al.* 2013, p. 177.

Cat. no. 4: a bottom fragment? figs. 26.4a-c

Museum of Amasra, K07-15 KS.

L. 12.5 × 10.5 cm; max. w. 8.4 × 6.15 cm; max. th. 4 cm.

Severe corrosion on the surface of the object.

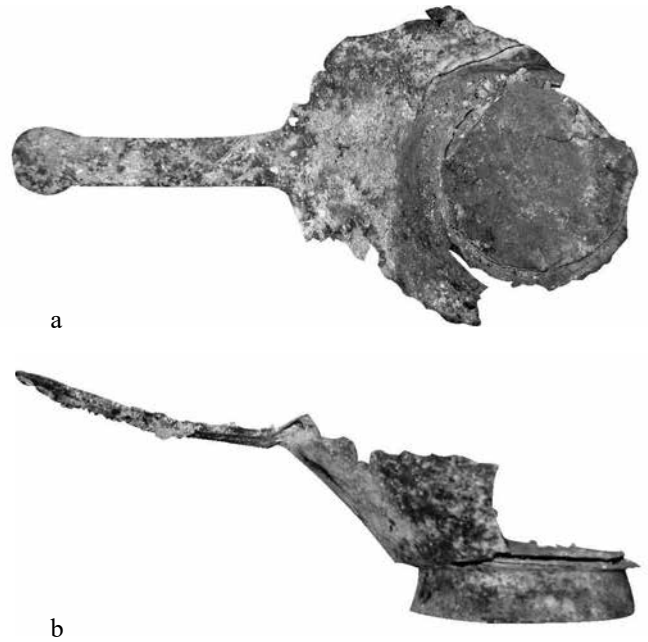


Figure 26.3a-b. A *patera* (by E. Lafli, 2008).

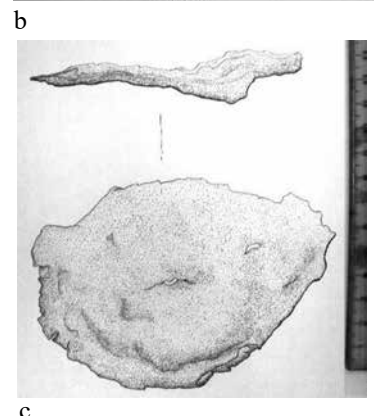


Figure 26.4a-c. A bottom fragment? (by E. Lafli, 2008).

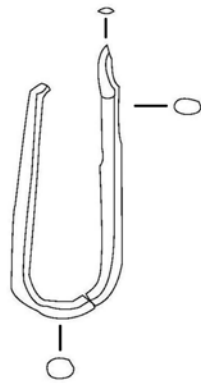
Bottom fragment of a circular vessel or mirror?
Roman period?

Cat. no. 5: a horizontal handle figs. 26.5a-c

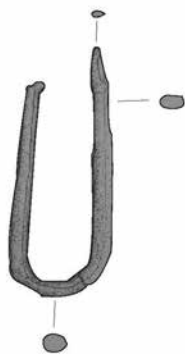
Museum of Amasra, K07-15 KS.
L. 7.3 cm; w. 4.2 cm; th. 0.7 cm (top); 0.4 cm (bottom).
A thin, horizontal handle.
Roman period.



a



b



c

Figure 26.5a-c. A horizontal handle (by E. Lafli, 2008).

Cat. no. 6: a handle? figs. 26.6a-d

Museum of Amasra, K07-15 KS.
Max. h. 2.4 cm; max. w. 2.3 cm; th. 0.8 cm (top); 0.2 cm (bottom).
Handle fragment, perhaps associated with cat. no. 5. Tip of hook broken off.

Cat. no. 7: a handle figs. 26.7a-c

Museum of Amasra, K07-4 KS.
Max. h. 6.4 cm; max. w. 2.6 cm; th. 1.2 cm (top); 2.3 cm (bottom).
Handle with a curved rim of a bronze vessel.

Fragments of polycandela

Cat. no. 8 figs. 26.8a-c

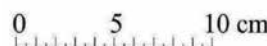
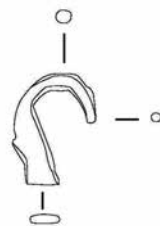
Museum of Amasra, K07-1 KS.
Max. w. 8.3 cm; th. 0.3 cm; diam. 7.97 × 8.0 cm.
Outer holes are broken; otherwise well preserved. Copper-alloy part from a suspension chain in the form of a pierced disc with openwork cross. Round flat hanging lamps, censer or *polycandela*, were lit by oil-filled glass vessels hung from the round holes. The centre of the *polycandelon* is decorated with a cross, which has six arms. Additional smaller openings in each arm are provided. Its round form resembles a wheel. On both sides and in the middle three circumferential lines are engraved.
Comparanda. Wright 2000, p. 166, fig. 12a-1 (sixth century AD). This object was misinterpreted by George Roy Haslam Wright as “harness pendant” which in fact should be an attachment for a *polycandelon*.³ Cf. also a pierced disc of a *polycandelon* from Israel: fig. 26.8c. Mid-sixth century AD.
Reference. Kara et al. 2013, p. 177.



a



b



c



d

Figure 26.6a-d. A handle? (by E. Lafli, 2008).

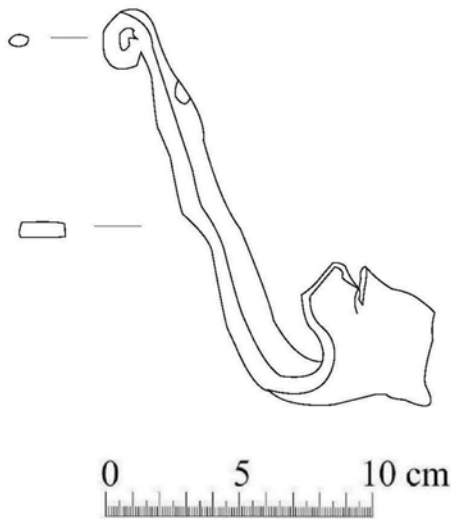
³ Wright 2000, p. 166, fig. 12a-1.



a



b



c

Figure 26.7a-c. A handle (by E. Lafli, 2008).

Cat. no. 9: a bronze disc figs. 26.9a-b

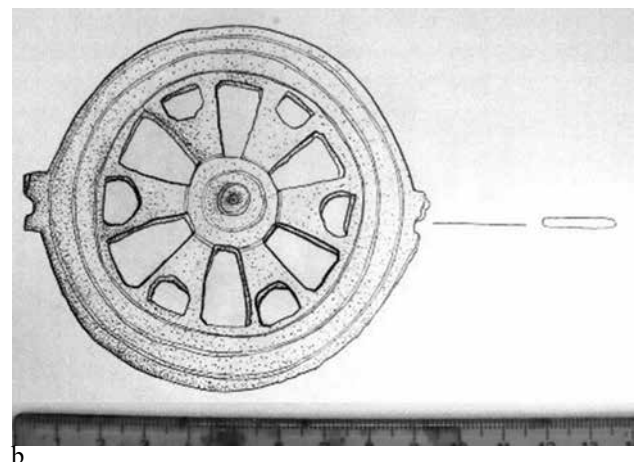
Museum of Amasra, K07-11 KS.

W. 3.5 cm; max. h. 2.2 cm; th. 0.2 cm (top); 0.1 (bottom); diam. 3.1 cm.

Small bronze disc probably worn on a *polycandelon* component, decorated with 16 ‘evil eye’ punched-dot circles at its edge. There is a hole in the centre of the object (diam. 0.4 cm) expressed with concentric circles.



a



b

Figures 26.8a-b. A copper-alloy part from a suspension chain in the form of a pierced disc (by E. Lafli, 2008).



Figure 26.8c. A similar fragment from Israel (by E. Lafli, 2011).

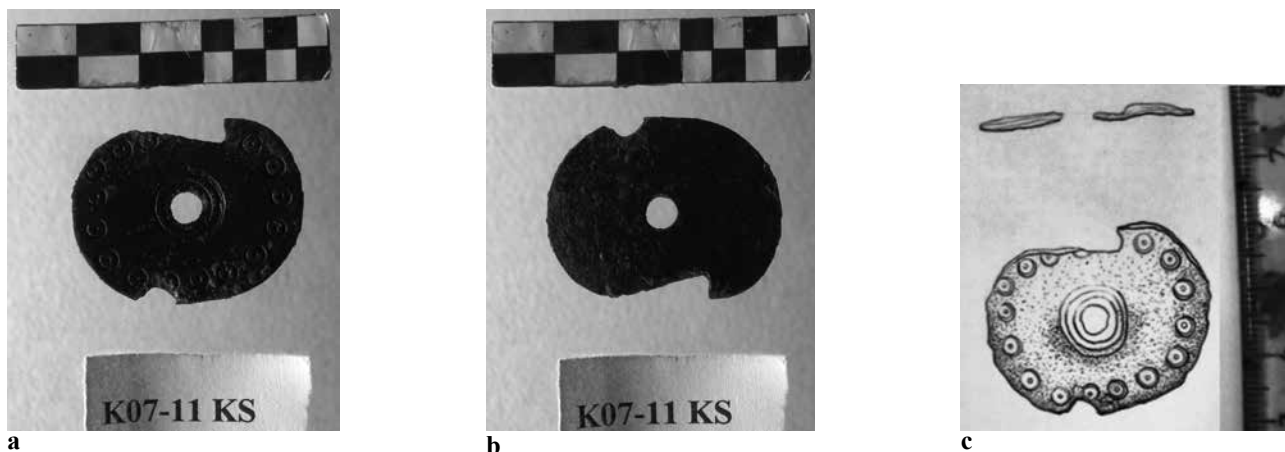


Figure 26.9a-c. A bronze disc (by E. Laflı, 2008).

Late sixth century AD.

Reference. Kara *et al.* 2013, p. 177.

Chains and their fragments

Cat. no. 10: bronze chains fig. 26.10

Museum of Amasra.

Baths A, Room 10B. Found on August 16, 2007.

Max. l 4.5 cm; w. 0.5 cm; th. 0.1 cm.

Well preserved.

It is of a quality bronze and should probably belong to a *polycandelon* or an incense pot.

Second half of the sixth century AD.



Figure 26.10. Bronze chains (by E. Laflı, 2008).

Cat. no. 11: Probably parts of bronze suspension systems for lighting devices and censers, or chain lock fig. 26.11

Acc. no. 16, Museum of Ereğli in Zonguldak.

Basilica B, Trench A-5. Found in November 2003.

Max. h. 12 cm.

Well preserved, except half of the hook in the middle is missing.

It is of a quality bronze and probably belongs to a *polycandelon* or an incense pot. It has a chain lock assembly consisting of three long wires twisted in a ring at the ends made of round thin wire, and S-shaped parts, which are also bent at the ends.

Second half of the sixth century AD.

Cat. no. 12: Probably parts of bronze suspension systems for lighting devices and censers, or chain lock fig. 26.12

Acc. no. 17, Museum of Ereğli in Zonguldak.

Basilica B, Trench A-5. Found in November 2003.

Max. h. 13 cm.

Well preserved.

It is of a quality bronze and probably belongs to a *polycandelon* or an incense pot. The tip is curved like a wire. It consists of a round wire and a hook attached to it with a S-shaped piece.

Second half of the sixth century AD.

Cat. no. 13: Probably parts of bronze suspension systems for lighting devices and censers, or chain lock fig. 26.13

Acc. no. 18, Museum of Ereğli in Zonguldak.

Basilica B, Trench A-5. Found in November 2003.

Max. h. 4 cm.

Well preserved.

It is of a quality bronze and probably belongs to a *polycandelon* or an incense pot.

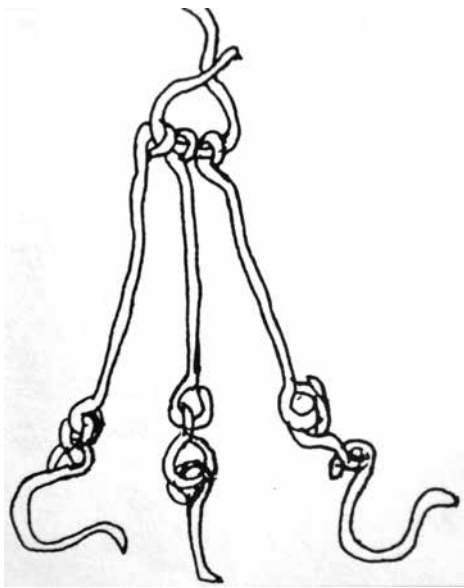
It consists of a S-shaped piece made of round wire and a hook attached to it.

Second half of the sixth century AD.

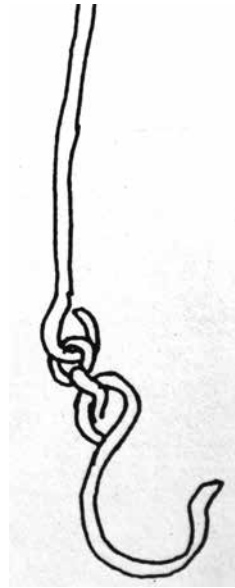
Cat. no. 14: a chain (?) figs. 26.14a-c

Fig. 19

Museum of Amasra, K07-7 KS.



26.11



26.12



26.13

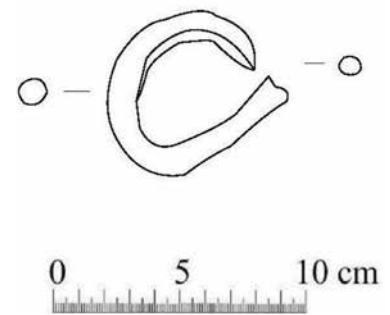
Figures 26.11-13. Three bronze chain locks (by E. Laflı, 2008).



a



b



c

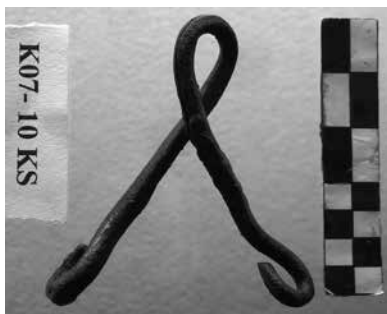
Figure 26.14a-c. A chain (by E. Laflı, 2008).

Baths A, Room 11. Found on August 13, 2006.
 Max. th. 0.2 cm; diam. 1.2 cm.
 Green corrosion.
 Bronze chain fragment (?) in the form of a plain wire, like an earring which does not form a complete circle. It could belong to a *polycandelon*.

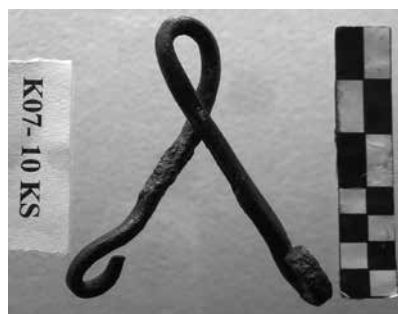
Cat. no. 15: part of a chain component figs. 26.15a-c
 Museum of Amasra, K07-10 KS.
 H. 4.9 cm; w. 4.7 cm; th. 0.6 cm (top); 0.3 cm (bottom).

Bronze grip of a chain component. Overlapping ends in form of hooks on both ends of this bent object.

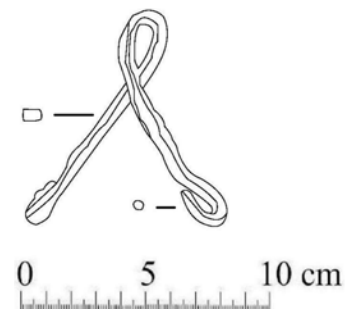
Cat. no. 16: part of a chain component figs.26.16a-c
 Museum of Amasra, K07-19 KS.
 Max. h. 2.9 cm; w. 1.6 cm; th. 0.4 cm (top); 0.2 cm (bottom).
 Covered with corrosion.
 U form. The end portions of the piece have a slight outward form.



a

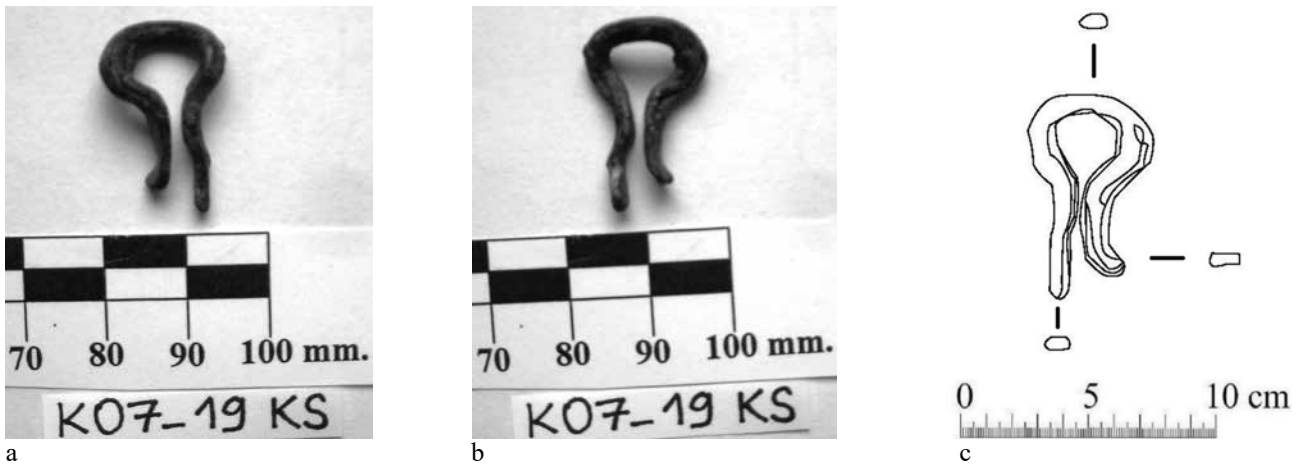


b



c

Figures 26.15a-c. Parts of a chain component (by E. Laflı, 2008).



Figures 26.16a-c. Parts of a chain component (by E. Lafli, 2008).



Figure 26.17a-c A fragment of an iron door latch mechanism (by E. Lafli, 2008).

Fragment of an iron door latch mechanism

Cat. no. 17 figs. 26.17a-c

Museum of Amasra, K07-15 B.
Max. h. 14.0 cm; w. 14.8 cm; th. 1.6 cm (top), 0.5 cm (bottom).

Iron with brown patina. Some bits broken or missing.
Iron lock plate. Cast via the lost wax (*cire perdue*) process. It has ridged protruding elements that were designed to receive a dowel-shaped fitting to lock the wood door to which it was affixed.

Comparanda. Vikan and Nesbitt 1980, pp. 1-9. For two further examples at the Museum of Byzantine Culture at Thessaloniki cf. figs. 26.14d-e.

Seventh century AD.

Reference. Kara et al. 2013, p. 178.

Belt buckles

Cat. no. 18 figs. 26.18a-c

Museum of Amasra, K07-2 KS.
Max. l 5.2 cm; w. 2.8 cm; 2.7 cm; th. 0.5 cm.

The ellipsoid-almond form buckle has a slender and sleek almond-shaped plaque finishing in a bulb finial.

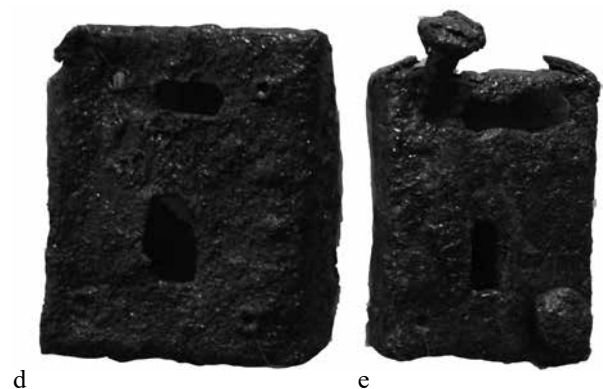


Figure 26.17d-e. Two iron door latch mechanisms at the Museum of Byzantine Culture at Thessaloniki, Greece (by E. Lafli, 2011).

Decorations and embellishments with oblique lines on its frame. A projection at the back of the object has a thickness of 0.3 cm which is made for a further object to attach.

Second half of the sixth century AD.

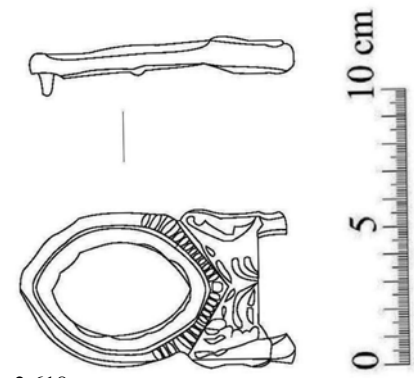
Reference. Kara et al. 2013, p. 180.



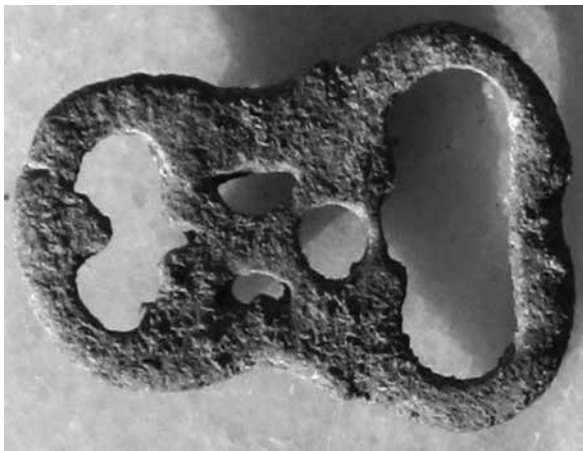
26.18a



26.18b



2.618c



26.19a



26.19b

Figures 26.18a-c-19a-b. Four belt buckles (by E. Lafli, 2008).

Cat. no. 19 figs. 26.19a-b

Museum of Amasra.

Domus, Room 4, layer 3. Found on July 29, 2007.

Max. l 6.2 cm; w. 3.1 cm; th. 0.3 cm; 0.4 cm.

It is well preserved with heavy corrosion.

It belongs to a five-holed belt. Its needle is missing. There are two large holes for the hook to pass through and three small holes in the middle.

Second half of the sixth century AD.

Reference. Kara *et al.* 2013, p. 180.

Cat. no. 20 figs. 26.20a-b

Museum of Amasra.

Baths A, Room 10B. Found on August 16, 2007.

Max. l 4.0 cm; w. 3.3 cm; th. 0.2 cm.

It is well preserved.

It is formed by a double row of six-petalled rosettes arranged side by side. Strings of dots form the lower and upper boundaries of the belt. Only the front is processed.

Seventh century AD.

Reference. Kara *et al.* 2013, p. 180.

Cat. no. 21 fig. 26.21

Museum of Amasra, K08–39 Mb.

Max. l 4.8; th. 0.9 (top); diam. 0.5 (bottom).

Iron. Round shaped.

Jewelries

Cat. no. 22: A bronze pendant or amulet fig.26.22

Acc. no. HDRN.08–11, Museum of Amasra.

It was found in the excavated soil of the Baths A without any context on September 10, 2008.

Max. h. 2.6 cm; w. 1.1 cm.

End portion damaged.

Bronze pendant or amulet perforated in form of a stylised vine leaf or heart.

Late sixth century AD.

Reference. Kara *et al.* 2013, p. 180.

Cat. no. 23: A lead bead fig. 26.23

Acc. no. HDRN.08–09, Museum of Amasra.

It was found in the excavated soil of the Baths A without any context on September 10, 2008.

Max. h. 1 cm; diam. 1.3 cm.

It is in the form of a hemisphere with a threading hole and circular base.

Seventh century AD.

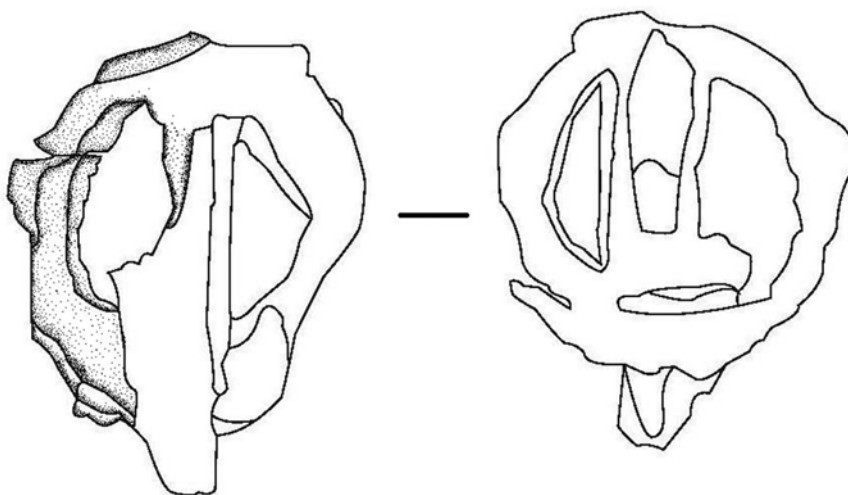
Reference. Kara *et al.* 2013, p. 181.



26.20a



26.20b



26.21

Figures 26.20a-b-21. Four belt buckles (by E. Lafli, 2008).



Figure 26.22. A bronze pendant or amulet (by E. Lafli, 2008).



Figure 26.23. A lead bead (by E. Lafli, 2008).

Cat. no. 24: a pair of bronze earrings fig. 26.24

Acc. no. 9, Museum of Ereğli in Zonguldak.
Basilica B, Trench A-4, Grave 1. Found in November 2003.
H. 4.5 cm; diam. 2.5 cm.
Well preserved.
This suspension loop-like earring is made from a single, cylindrical wire. A teardrop-shaped glass pendant and three glass ornaments on each earring are also preserved.
Eighth/ninth century AD.

Cat. no. 25: an earring fig. 26.25

Acc. no. HDRN.08-07, Museum of Amasra.
It was found in the excavated soil of the Baths A without any context on September 3, 2008.
W. 1.7 cm; diam. 1.9 cm; th. 0.1 cm.
This suspension loop-like earring is made from a single wire with a flattened terminal. It is guilloché shaped, the clip of which is missing.
Sixth/seventh century AD.
Reference. Kara *et al.* 2013, p. 181, fig. 15.

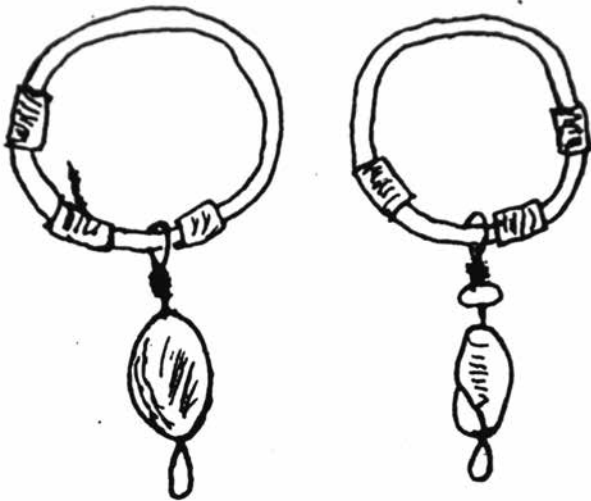


Figure 26.24. A pair of bronze earrings (by E. Lafli, 2008).

Cat. no. 26: an earring fig. 26.26

Acc. no. 11, Museum of Ereğli in Zonguldak. Basilica B, Trench A-5, Grave 3. Found in November 2003.
Diam. 5 cm.
This suspension loop-like earring is made from a single wire. It is guilloché shaped, the clip of which is well-preserved.
Eighth/ninth century AD.

Cat. no. 27: an earring fig. 26.27

Acc. no. 13, Museum of Ereğli in Zonguldak. Basilica B, Trench A-5, Grave 3. Found in November 2003.

Diam. 2 cm.
This suspension loop-like earring is made from a single wire with a flattened terminal. It is guilloché shaped, the clip of which is missing.
Eighth/ninth century AD.

Cat. no. 28: an earring fig. 26.28

Acc. no. 12, Museum of Ereğli in Zonguldak. Basilica B, Trench A-5, Grave 3. Found in November 2003.
Diam. 4.3 cm.
This suspension loop-like earring is made from a single wire with a guilloché shaped terminal. Its clip is well-preserved.
Eighth/ninth century AD.

Cat. no. 29: an earring figs. 26.29a-c

Museum of Amasra, K07-3 KS.
Diam. 2.6 cm; max. th. 0.1 cm.
Bent.
This plain suspension loop-like earring is a single wire, the clip of which is missing.
There should be a small hook at one end. There is a cuprite layer of approximately 1.5 cm near the end where the hook seems to break off.

Cat. no. 30: a finger ring with an engraved bezel fig. 26.30

Acc. no. 16, Museum of Ereğli in Zonguldak. Basilica B, Trench A-4, Grave 2. Found in November 2003.
Well preserved.
Diam. 1.5 cm.



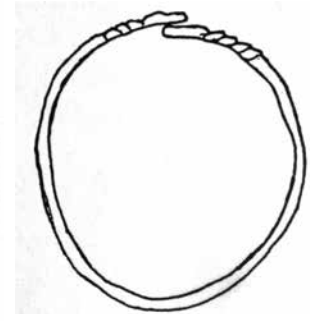
26.25



26.26



26.27



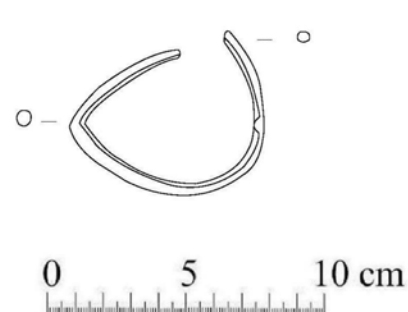
26.28



26.29a



26.29b



26.29c

Figure 26.25-29a-c. Five earrings (by E. Lafli, 2008).

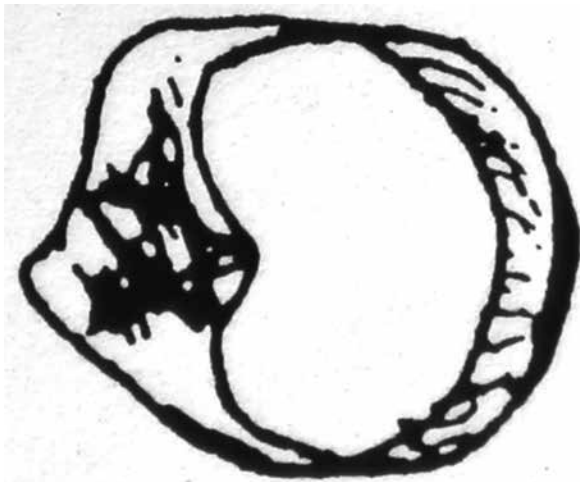


Figure 26.30. A finger ring with an engraved bezel (by E. Laflı, 2008).

A small bronze ring with a diamond-shaped bezel on which a stylised five-pointed star is engraved. The star as an iconographic symbol became popular in Eastern Greek kingdoms during the Hellenistic period, and during the Byzantine period it symbolised the light of the sun that keeps shining in the night sky.
Eighth/ninth century AD.

A bronze cross pendant

Cat. no. 31: fig. 26.31

Acc. no. 5, Museum of Ereğli in Zonguldak. Basilica B, Trench A-4, Grave 2. Found in November 2003.

H. 4.5 cm; w. 3 cm.

A small cast bronze pendant in the form of a cross pommee, with two incised ring-and-dots detailing to the face on each arms and a central attachment hole, possibly for a gem. Its leg is almost as long as arms.
Eighth/ninth century AD.

Other handles

Cat. no. 32: a handle fig. 26.32

Museum of Amasra, K08.39.Mb.

Max. h. 6 cm; th. 0.6 cm (top); 0.3 cm (bottom) diam. 0.4 cm (head).

With stunning green patina.

A bronze cast handle, which belongs probably to a bronze *fibula*? The head is curved. The profile of the object is round.

Cat. no. 33: a handle figs. 33a-c

Museum of Amasra, K07-06 KS.

Max. l 5.1 cm; th. 0.4 cm (top); 0.1 cm (bottom).

Handle of a buckle?

Weights

Cat. no. 34: a disc coin weight fig. 26.34

Museum of Amasra.

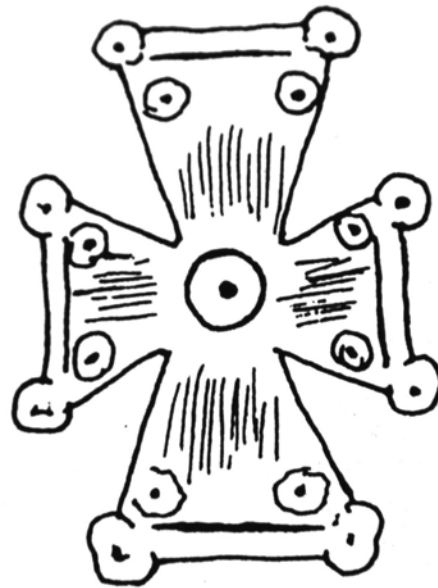


Figure 26.31. A bronze cross pendant (by E. Laflı, 2008).

It was found in the excavated soil of the Baths A without any context on August 19, 2008.

Diam. 2.2 cm; th. 0.5 cm; wg. 12.7 g.

Weight is 3 *nomismata*. A discoid coin weight, also called Ekzagya, with raised rims and grooved edges. On the left an 'N' and on the right side a 'Γ' which means *Nomismata* 3. Between these numbers a centering hole.

Reverse plain.

Comparanda. Minchev 2008, p. 15, nos. 50–52 (with figures).

Fifth/sixth century AD.

References. Laflı and Christof 2012, p. 110, fig. 99; Laflı and Gürler 2014, p. 69, figs. 30b-c; and Kara *et al.* 2013, p. 181.

Cat. no. 35: a disc weight fig. 26.35

Museum of Amasra.

It was found in the excavated soil of the Baths A without any context on August 17, 2008.

Diam. 3.5 cm; th. 0.8 cm; wg. 74.36 g.

Because of corrosion it needs conservation.

Weight is 2 *unciae*. One ounce is about 27,2–27,4 g.

Therefore, this is a 3-ounce weight. A discoid commercial weight with raised rims and grooved edges. Two concentric circles appear to be lathe cut. On obverse a centering hole and incised circular marks. Reverse plain.

It suggests the existence of a local heavy *uncia* standart rather than false weights.

Sixth century AD.

Reference. Kara *et al.* 2013, p. 181.

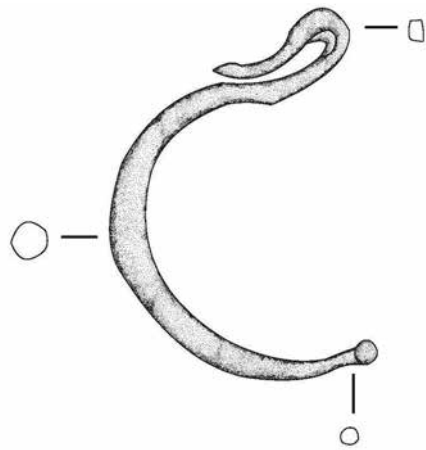
Cat. no. 36: a lead weight fig. 26.36

Museum of Amasra.

It was found in the excavated soil of the Baths A without any context on August 12, 2008.

L. 1.3 cm; w. 1.2 cm; th. 0.3 cm; wg. 14.25 g.

Plain lead weight in square form with rounded corners.



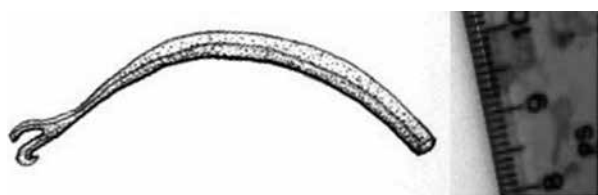
26.32



26.33a



26.33b



26.33c

Figures 26.32-33a-c. Two handles (by E. Lafli, 2008).



26.34



26.35

Figures 26.34-35. Two disc weights (by E. Lafli, 2008).



Figure 26.36. A lead weight (by E. Lafli, 2008).

Apparently a personal weight rather than an official market weight, *i.e.* perhaps a coin weight which was made to correspond to the weights of particular coin denominations. The purpose of such weights was to check the weight of coin in circulation and ensure that coin received was of good quality.

Reference. Kara *et al.* 2013, p. 181.

An iron arrowhead

Cat. no. 37 figs. 37a-c

Museum of Amasra, K07-09 KS.

Baths A, Room 11. Found on August 14, 2006.

Max. l 8.4 cm; l. (tang) 4.2 cm; max. w. 2.1 cm; diam. 0.6 cm (head); diam. 1 cm (tang).

Some slight surface roughness as well as corrosion and usual rust patina.

Iron arrowhead of broad leaf (diamond) shape for maximum penetrating strength, with a hollow collar and long tang at base for insertion into the wooden arrowshaft.

Comparanda. For two similar types of arrow heads from Thessaloniki *cf.* figs. 37d-e.

Fifth/seventh century AD.

Reference. Kara *et al.* 2013, p. 182.

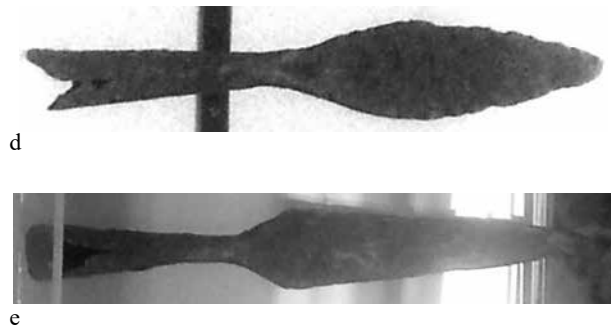


Figure 26.37d-e. Two iron arrowheads at the Museum of Byzantine Culture at Thessaloniki, Greece (by E. Lafi, 2011).

A bronze thimble

Cat. no. 38 figs. 38a-c

Museum of Amasra, K07-8 KS.

Baths A. Season 2006.

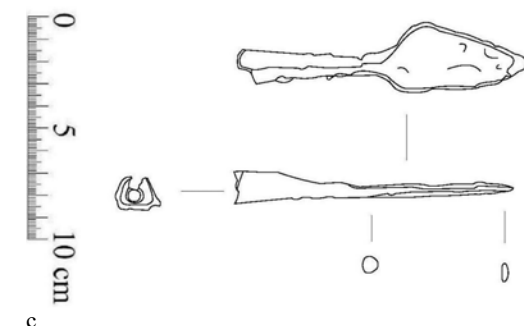


Figure 26.37a-c. An iron arrowhead (by E. Lafi, 2008).

Max. w. 1.8 cm; h. 2.1 cm; th. 0.2 cm; diam. *ca.* 3.2 cm.

Covered with a layer of dark green malachite corrosion.

Fragment of a round-shaped and open-topped thimble crafted with hand-pinched indentations. It was hand-dimpled, made from a flat band of copper alloy which was rolled into a cylinder with overlapping ends. Similar thimbles have been found in Antioch-on-the-Orontes in Turkey and Corinth in Greece.⁴

The earliest cast, flat-band thimble has been identified from an archaeological excavation in Scythia along with silver coins minted in the second century BC. For some unknown reason the Romans do not seem to have used metal thimbles for sewing. In Asia Minor the earliest use of thimbles is during the Early Byzantine period.

Comparanda. Between 2008 and 2010, Professor Roger J.A. Wilson of the University of British Columbia excavated a building in a Late Roman/Early Byzantine village on the south coast of Sicily at Punta Secca (Ragusa province). The building was built *ca.* AD 580/600, at which time Sicily was already part of the Byzantine empire. During the excavation a bronze thimble was discovered in a sealed and undisturbed occupation layer dated by coins to *ca.* 600/625. For other similar type of thimbles from Thessaloniki *cf.* figs. 26.38d. A further one has been reported from Amorium (information by C. Lightfoot in 2021).

Early seventh century AD.

Reference. Kara *et al.* 2013, p. 182.

Iron hoops for animal traction

Cat. no. 39: an iron hoop figs. 26.39a-c

Museum of Amasra, K07-16 KS.

Diam. 2.92 × 3.14 cm; max. th. 1.7 cm.

Baths A, Room 8. Found on August 9, 2006.

Orange corrosion combined with small pebbles on the surface.

Cat. no. 40: an iron hoop fig. 26.40

Museum of Amasra, K08-25 Mb.

Diam. 3.2 cm; th. 0.6 cm (top); th. 0.4 cm (bottom).

⁴ Davidson 1952, p. 175.



a



b



c

Figure 26.38a-c. A bronze timble (by E. Lafli, 2008).



d

Figure 26.38d. Four bronze timbles at the Museum of Byzantine Culture at Thessaloniki, Greece (by E. Lafli, 2011).

Cat. no. 41: an iron hoop fig. 26.41

Museum of Amasra, K08–39 Mb.

Diam. ca. 4 cm; th. 0.2 cm.

Fragmented.

Arc-shaped.

Fragments of unidentified implements

Cat. no. 42: an appliqué panel figs. 26.42a-c

Museum of Amasra, K07–11 KS.

Baths A, Room 11. Season 2006.

Max. h. 5.4 cm; max. w. 3.2 cm; th. 0.6 cm (top); th. 0.1 cm (bottom).

A thin, almost square appliqué panel made from a copper alloy. There are two nail holes in the middle, perhaps to combine it with a wooden object. An incised circle is preserved only in quarter, the interior of which has been decorated with further incised linear decoration.

Sixth century AD.

Reference. Kara *et al.* 2013, p. 182.

Cat. no. 43: an elongated object fig. 26.43

Museum of Amasra, K08–39 Mb.

Max. h. 5.7 cm; w. 2.1 cm; th. 0.2 cm.

A knife-like elongated object with three (nail?) holes. It was made from a bronze alloy.

Cat. no. 44: an elongated object fig. 26.44

Museum of Amasra, K08–29 Mb.

Max. h. 4.4 cm; w. 1.8 cm; th. 0.1 cm.

A knife-like elongated object with a (nail?) hole and several bubbles.

Cat. no. 45: a possible appliqué fig. 26.45

Museum of Amasra, K08–22 Mb.

Max. h. 1.9 cm; w. 0.9 cm; th. 0.1 cm.

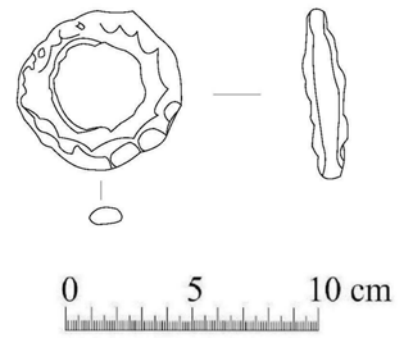
An elongated, plain object, probably used as an appliqué.



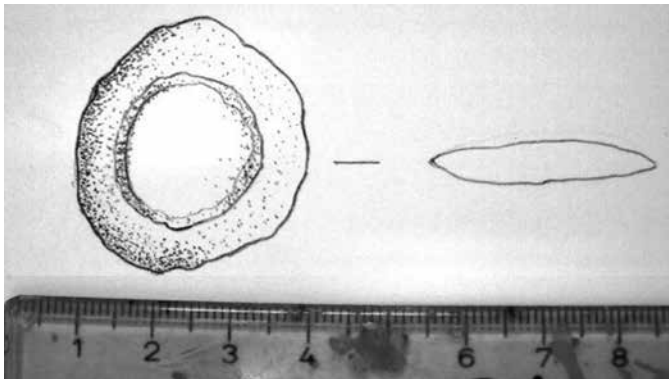
26.39a



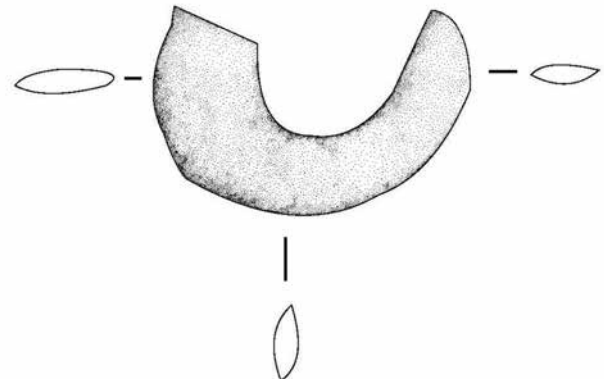
26.39b



26.39c



26.40



26.41

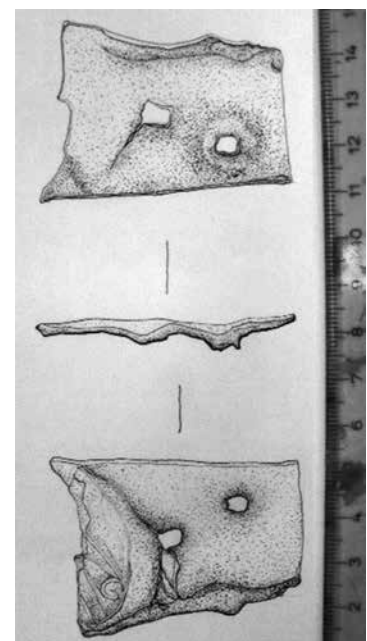
Figures 26.39a-c-41. Three iron hoops (by E. Lafli, 2008).



a

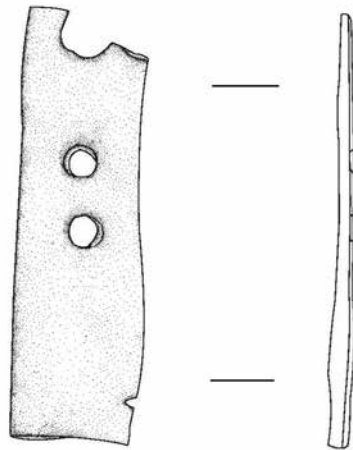


b

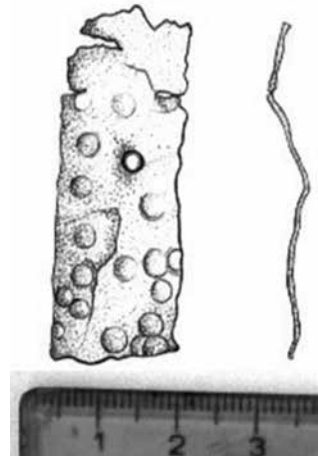


c

Figure 26.42a-c. An appliqué panel (by E. Lafli, 2008).

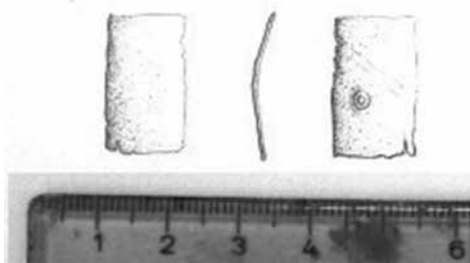


26.43

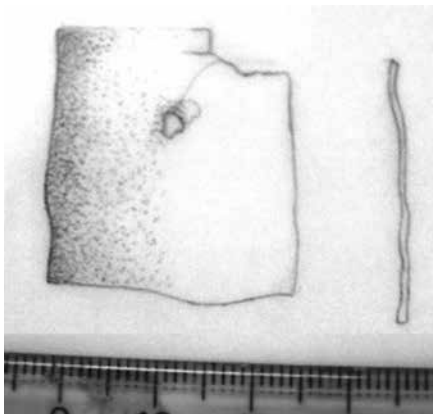


26.44

Figures 26.43-44. Two elongated objects (by E. Lafli, 2008).



26.45



26.46

Figures 26.45-46. Two possible appliquéés (by E. Lafli, 2008).

Cat. no. 46: a possible appliquéé fig. 26.46

Museum of Amasra, K08–24 Mb.

Max. h. 2.9 cm; w. 2.4 cm; th. 0.1 cm.

An elongated, plain object with a (nail?) hole, probably used as an appliquéé.

Cat. no. 47 fig. 26.47

Museum of Amasra.

Surface find at the temple slope on the *Acropolis* of Kimistene. Season 2005.

Max. h. 3.7 cm; max. w. 3.2 cm; th. 0.2 cm

A very thin, straight body fragment of a copper alloy vessel (a bowl?), decorated with two ‘evil eye’ punched-dot circles.

Seventh century AD.

Cat. no. 48 fig. 26.48

Museum of Amasra.

Surface find at the temple slope on the *Acropolis* of Kimistene. Season 2005.

Max. h. 3.2 cm; max. w. 2.6 cm; th. 0.1 cm.

Bent.

A very thin body fragment of a copper alloy, ribbed object.

Cat. no. 49 fig. 26.49

Museum of Amasra, K08–34 Mb.

Max. h. 2.9 cm; max. w. 3.5 cm; th. 0.4 cm.

Corroded.

A body fragment of a copper alloy object with a thick wall and a convex edge.

Cat. no. 50 fig. 26.50

Museum of Amasra, K07–13.

Max. w. 3.6 cm; max. h. 2.4 cm; th. 0.2 cm.

Corroded surface.

A body fragment of a copper object with a thin, ribbed wall.

Cat. no. 51 fig. 26.51

Museum of Amasra, K08–34 Mb.

Max. h. 4.6 cm; w. 2.6 cm; th. 0.1 cm (bottom).

Corroded surface. Green corrosion due to its composition: a bronze alloy.

A body fragment of an object with a thin, straight wall.

Cat. no. 52 fig. 26.52

Museum of Amasra, K08–37 Mb.

Max. h. 5.3 cm; max. w. 4.8 cm; th. 0.3 cm (top); 0.2 cm (bottom).

Corroded surface.

A fragment of an object with a thin, straight wall. Perhaps a base.

Cat. no. 53 fig. 26.53

Museum of Amasra, K08–26 Mb.

Max. h. 4.1 cm; max. w. 4.1 cm; th. 0.1 cm.

Corroded surface.

A body fragment of an object with a thin, straight wall.

Cat. no. 54 fig. 26.54

Museum of Amasra, K08–37 Mb.
Max. h. 1.8 cm; w. 1.6 cm; th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 55 fig. 26.55

Museum of Amasra, K08–37 Mb.
Max. h. 2.9 cm; th. 0.2 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 56 fig. 26.56

Museum of Amasra, K08–37 Mb.
Max. w. 2.5 cm; max. h. 2.6 cm; th. 0.3 cm (top); 0.1 cm (bottom).
Bent.
A fragment of an object with a thin, straight wall. Perhaps a base.

Cat. no. 57 fig. 26.57

Museum of Amasra, K08–37 Mb.
Max. w. 1.9 cm; max. h. 2.1 cm; th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 58 fig. 26.58

Museum of Amasra, K08–37 Mb.
Max. h. 3.1 cm; max. w. 1.6 cm; th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 59 fig. 26.59

Museum of Amasra, K08–37 Mb.
Max. h. 2.9 cm; max. w. 3.1 cm; th. 0.2 cm.
Bent.
A body fragment of an object with a thin, straight wall.

Cat. no. 60 fig. 26.60

Museum of Amasra, K08–37 Mb.
Max. h. 4.4 cm; max. w. 7.5 cm; th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 61 fig. 26.61

Museum of Amasra, K08–37 Mb.
Max. h. 3.6 cm; max. 3 cm (top); max. w. 1.4 cm (bottom); th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 62 fig. 26.62

Museum of Amasra, K08–38 Mb.
Max. h. 5.3 cm; max. w. 2.2 cm; th. 0.1 cm.
A body fragment of an object with a thin, straight wall.

Cat. no. 63 fig. 26.63

Museum of Amasra, K08–21 KÖ Mb.
Max. h. 3.2 cm; max. w. 2.4 cm; th. 0.1 cm.
A body fragment of an object (appliqué?) with a thin, straight wall and a (nail?) hole.

Cat. no. 64 fig. 26.64

Museum of Amasra, K08–36 Mb.

Max. h. 7.8 cm; max. w. 6.5 cm; th. 0.6 cm.
An almost circular fragment of an unknown sort of lead object.

Cat. no. 65 fig. 26.65

Museum of Amasra, K08–35 Mb.
Max. h. 9 cm; max. w. 5.8 cm; th. 0.5 cm (top).
Severe corrosion on the surface.
A fragment of an iron sheet in triangular-tongue form with a thick wall. Fragment of a cutting tool?

Cat. no. 66 fig. 26.66

Museum of Amasra, K08–34 Mb.
Max. h. 5.6 cm; max. w. 2.6 cm; th. 0.4 cm (bottom).
Surface is corroded. Green corrosion on side.
A fragment of an iron sheet in elongated form with a thick wall.

Cat. no. 67 fig. 26.67

Museum of Amasra, K08–21 KÖ Mb.
Max. h. 4.2 cm; max. w. 2.7 cm; th. 1.9 cm.
Fragment of an unknown iron object.

Cat. no. 68 fig. 26.68

Museum of Amasra, K08–34 Mb.
Max. h. 7.7 cm; max. w. 2.6 cm (top); diam. 1.4 cm (bottom); diam. 3.3 cm (top).
A fragment of a handle-like, involute iron object with a thick wall.

Cat. no. 69 fig. 26.69

Museum of Amasra, K08.22 Mb.
Max. h. 3.4 cm; max. w. 1.7 cm; th. 0.5 cm (bottom).
One side of the iron fragment is slightly curved inwards.

Cat. no. 70 fig. 26.70

Museum of Amasra, K08–32 Mb.
Max. h. 3.5 cm; max. w. 1.7 cm; th. 0.9 cm (top); th. 0.5 cm (bottom).
Fragment of an iron object which is folded and pierced by rotating one end inwards.

Cat. no. 71 fig. 26.71

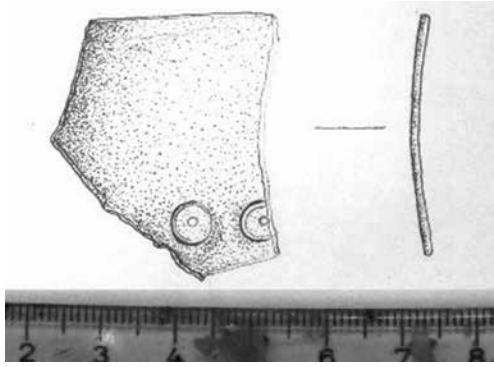
Museum of Amasra, K08–24 Mb.
Max. h. 4.5 cm; w. 1.9 cm; th. 0.3 cm.
Handle (?) fragment of a thin copper alloy object which is pierced in its upper end.

Cat. no. 72 fig. 26.72

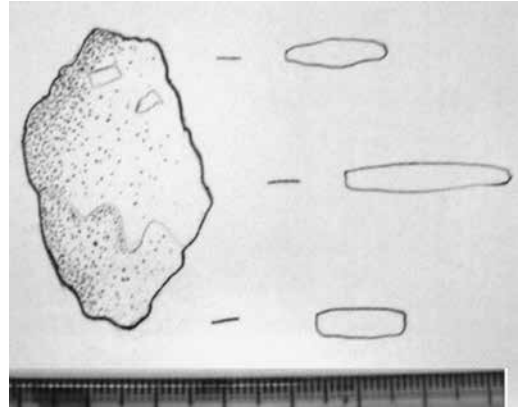
Museum of Amasra, K08–24 Mb.
Max. h. 2.9 cm; w. 0.7 cm; th. 0.1 cm.
Upper end fragment of a medical implement, with spike tang for insertion into handle?

Cat. no. 73 fig. 26.73

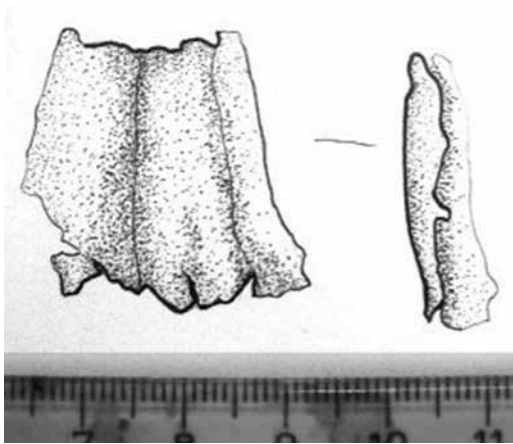
Museum of Amasra, K08–23 Mb.
Max. h. 5 cm; th. 1.3 cm (top); diam. 0.6 cm (bottom).
Hollow like a thin pipe. Poorly understood form.



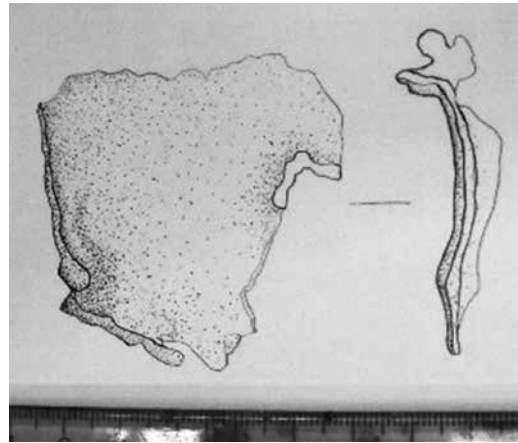
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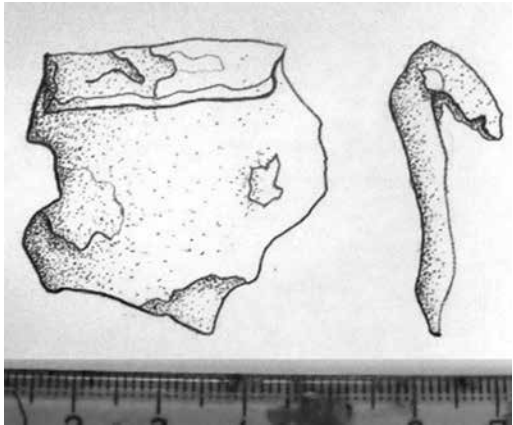
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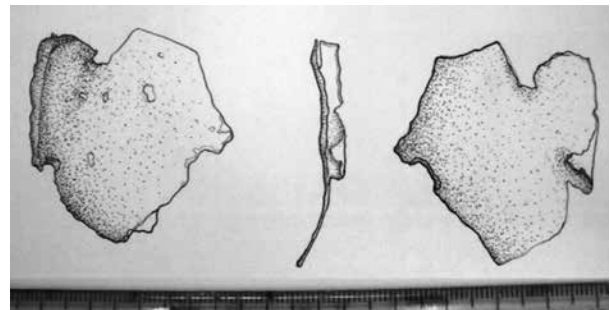
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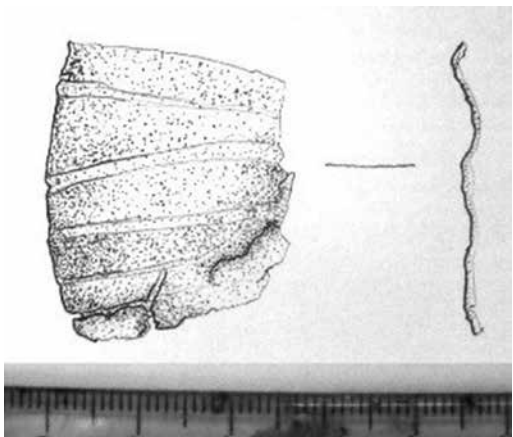
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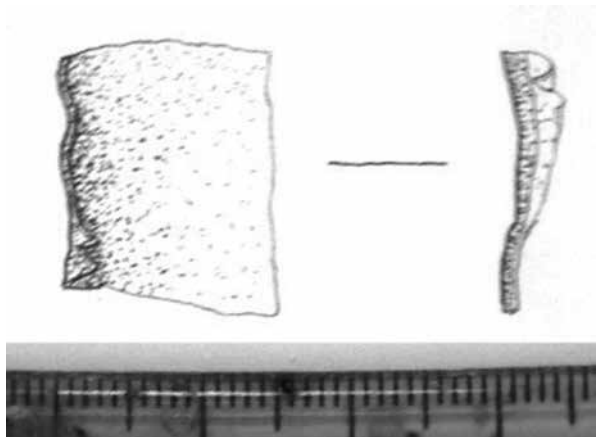
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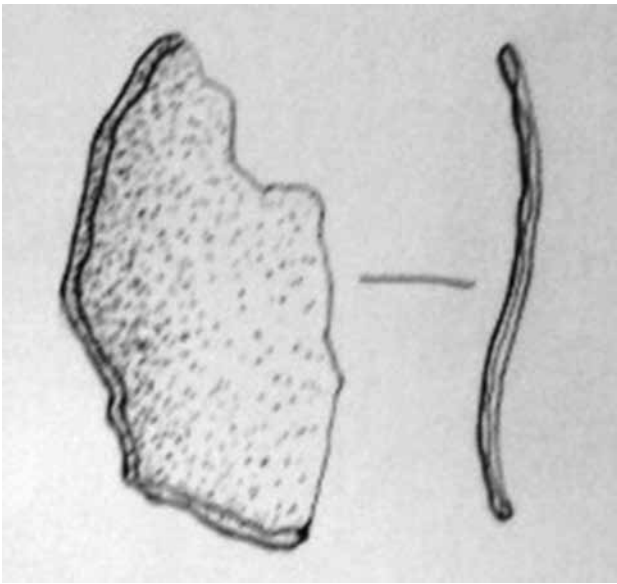
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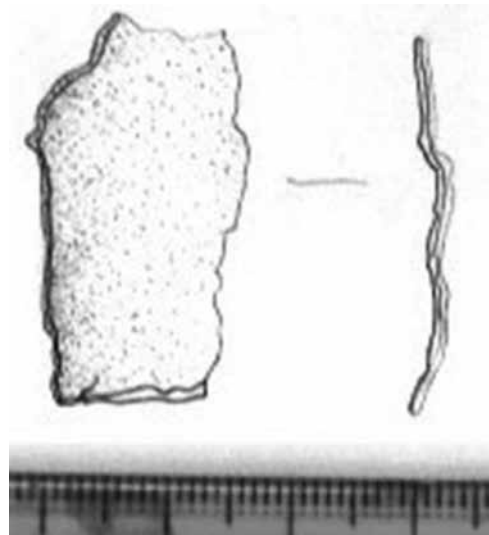
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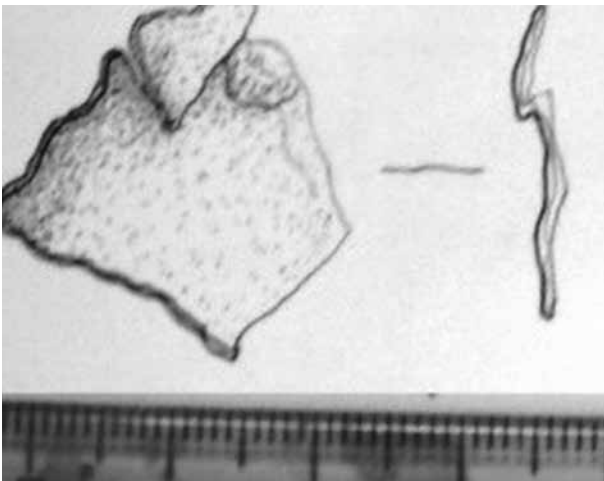
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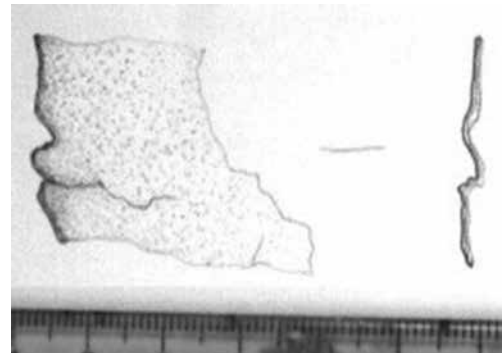
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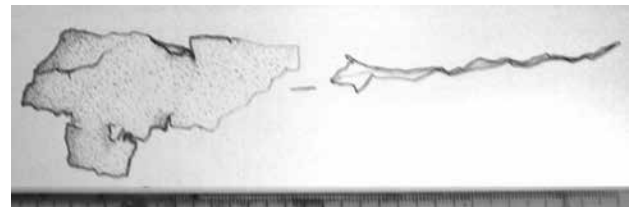
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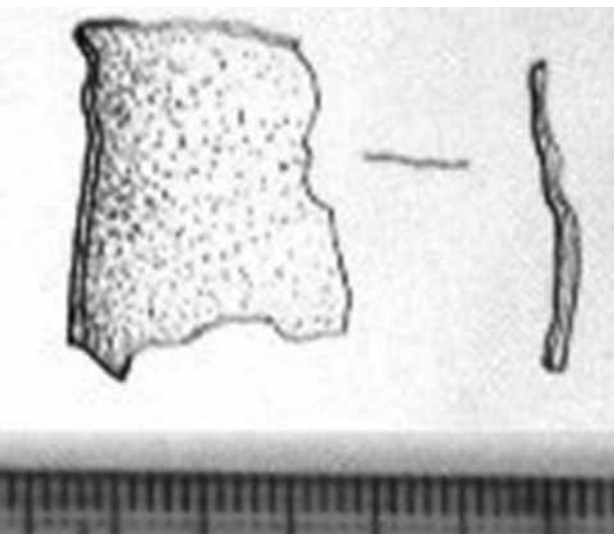
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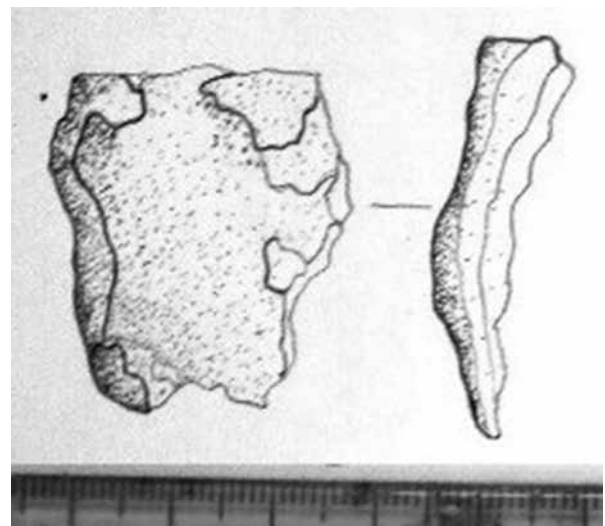
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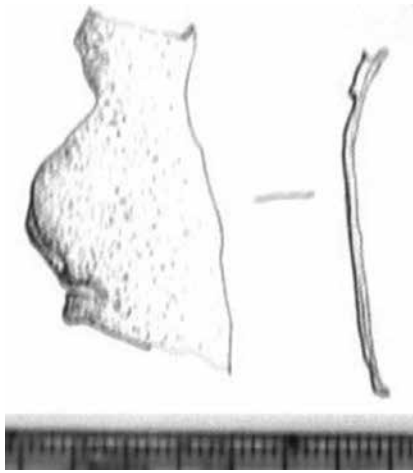
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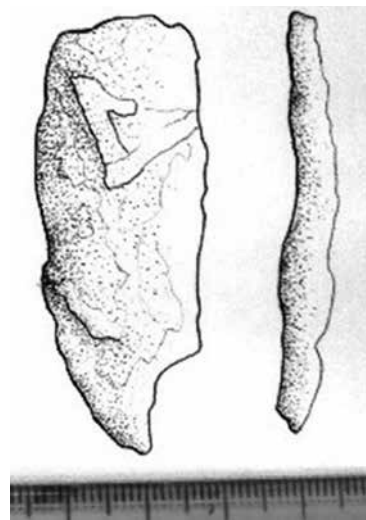
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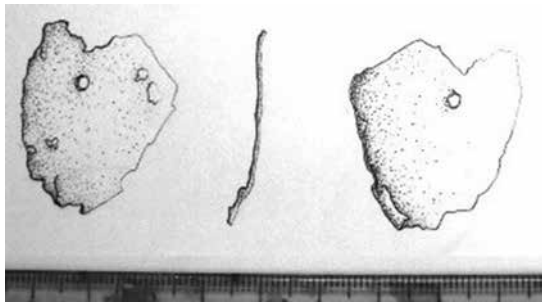
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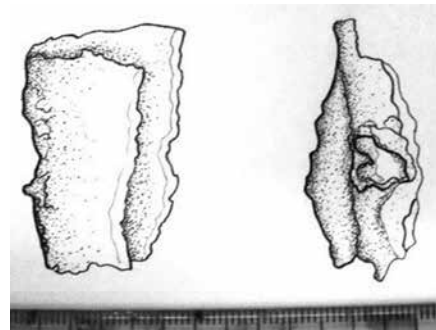
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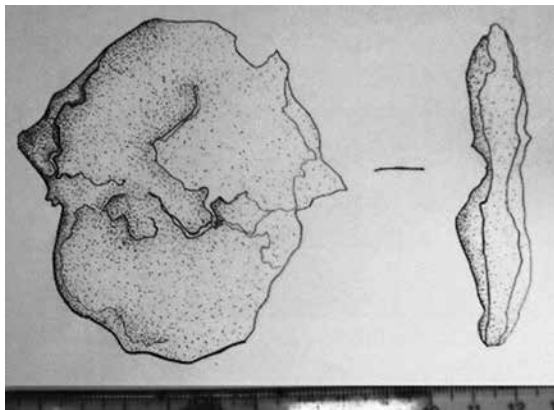
26.66



26.63



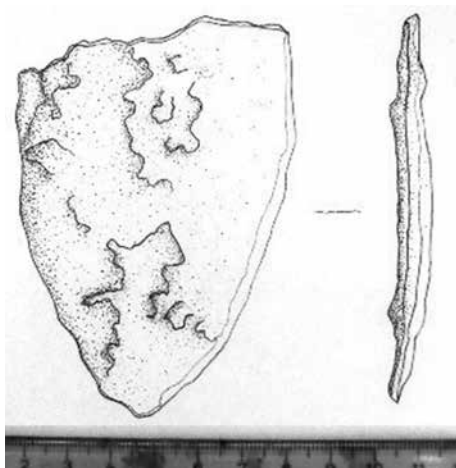
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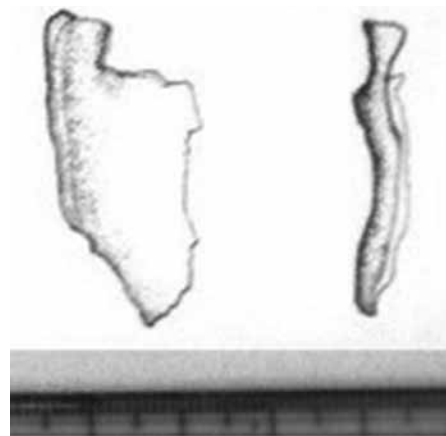
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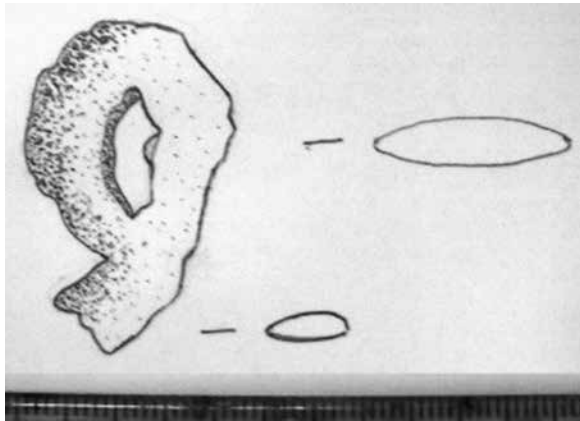
26.68



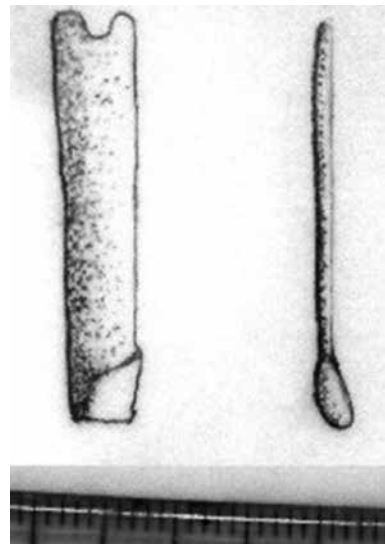
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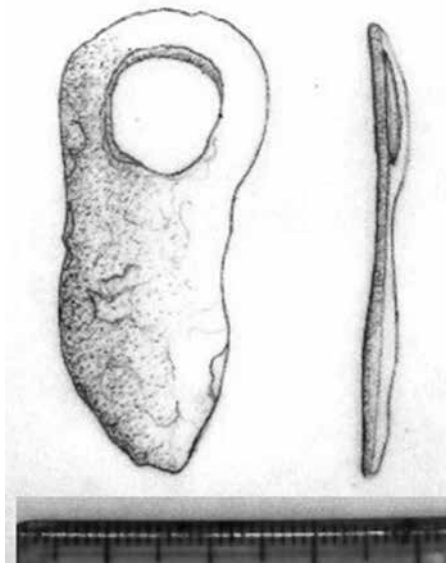
26.69



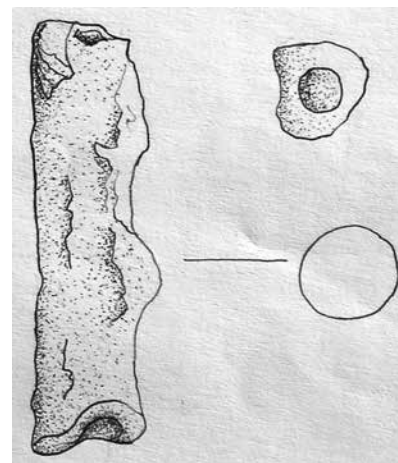
26.70



26.72



26.71



26.73

Figures. 26.47-73. Fragments of other unidentified implements (by E. Lafli, 2008).

An intact iron nail?

Cat. no. 74 fig. 26.74

Acc. no. HP07/06, Museum of Amasra.

Baths A, Room 10B. Found on August 16, 2007.

H. 9.4 cm; max. w. 0.8 cm (top); th. 0.2 cm.

Well preserved.

A thin nail with a piriform-snake-like head and a curved and bent tip. It could also be a hair or garment pin with many parallels or a medical implement with a scoop designed as a powder funnel.

Second half of the sixth century AD.

Other iron nails

Among the metal materials, iron nails are the most common find in Hadrianopolis: their number is more than 268 (figs. 75–343). The reason for the presence of such a great number of nails in the region is due to the frequent use of nails in woodworking in the Early Byzantine architecture of southwestern Paphlagonia. The typologies of nails are not diverse. The exact function of these nails is



Figure 26.74. An intact iron nail? (by E. Lafli, 2008).

difficult to reconstruct, but it has an association with their sizes and forms. Virtually all iron objects recovered from Hadrianopolis were encrusted with a carbonate-rich layer; some of the objects have been cleaned and conserved.

Metal nails date back at least to Ancient Egypt: bronze nails found in Egypt have been dated to 3.400 BC. In Asia Minor the first nails were made of wrought iron in great numbers first in the Roman period. The Romans made extensive use of nails and during the Roman and Byzantine periods nails themselves were sufficiently valuable throughout Asia Minor. Early Byzantine iron nails are one of the largest group of archaeological finds in Turkey, but there are very few studies devoted specifically to this group. It seems that iron nails were in use in wooden architecture in Asia Minor, especially in the Early Byzantine period, and continuing uninterruptedly until the end of the Ottoman period. So far Corinth in Greece seems to be one of the sites where Byzantine iron nails were investigated in the greatest detail: according to Gladys R. Davidson, the Corinthian iron nails with a rectangular section, round head and height of 16 cm should be dated to the 11th/12th centuries.⁵ In some excavations in Asia Minor these have been reported, but only a limited number. From these reports we have very scanty evidence for their typology, chronology, use, production and distribution in Turkey. Generally it is believed that in Byzantine Asia Minor flat-headed nails were functional, while nails with semicircular heads had a decorative function as well. In the Roman period a further use of iron nails is seen in wooden coffins, especially in the forms of hobnails and thumbtacks.⁶ Some of the findspots for the iron nails (and pegs) used in the architecture during the Roman and Byzantine periods through Turkish annual reports are as follows (from west to east; **map 3**): Aenus, Bathonea, Constantinople, Scevopholicium (Skevophylakion) of St Sophia in Istanbul, Smintheum, Adramyttium, Cyzicus (height of nails 5–10 cm) Nicaea, İDÇ Harbour site by Cyeme, Nif-Olympus, Metropolis, theatre in Philadelphia, Çakırbeyli-Küçüktepe *höyük* site in Caria, Stratonicea, Cnidus, Caunus, Hierapolis (7–10 cm), Laodicea on the Lycus, Tripolis (7–12 cm), Çiledir Höyük by Kütahya, Amorium, Germa, Pisidian Antioch, Sagalassus, Cremna, Isparta, Ancyra, Parnassus, church excavations at Güzlü Höyük in Aksaray, Gevale Kale in Konya, Karaman, Arycanda, Patara, Olympus, Phaselis, baths at Tarsus, Tarsus-Gözlükule, Germanicia, hippodrome at Antioch-on-the-Orontes, Samosata, Oluz Höyük in Amasya and Castle site of Divriği in Sivas. This list of findspots in Asia Minor does not include nails found in burials. So far no study has been undertaken to determine the main nail production site in Roman and Byzantine Asia Minor.

⁵ Davidson 1952, p. 138.

⁶ During the Roman period such nails found in graves may have been used for the wooden cist where the deceased was laid, and especially large and bent iron nails may have been left in the graves as apotropaic amulets. In Aizani in Phrygia similar iron nails were found in a tomb with a rooster dated to the second century AD, and they were interpreted as pieces of wooden stretchers.

They were most probably produced *in situ* when needed and were not a subject of trade.

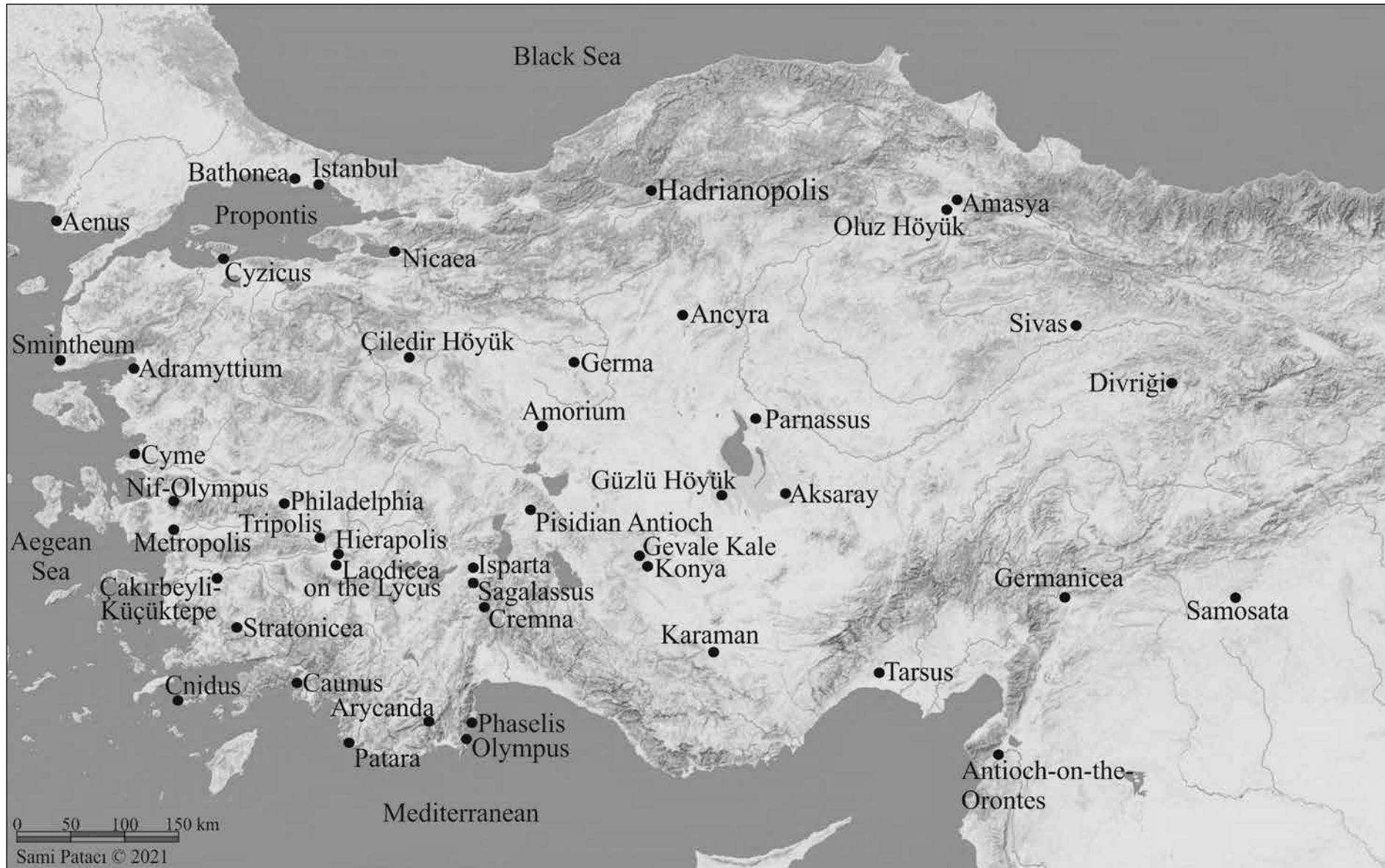
Between 2006 and 2008, 268 iron nails and their fragments were documented and drawn in Hadrianopolis (**figs. 26.75–343**). They were stored in the aforementioned container at the site in 2008. Almost all of the nails from Hadrianopolis are unadorned. Their findspots were Baths A, *Domus*, Basilica A and Basilica B, all of which were built and used during the sixth and seventh centuries AD. The number of iron nails at Basilicas A and B cannot be determined. Three buildings in particular, Baths A, Basilica B and *Domus*, provided a huge amount of iron nails. They were used in these buildings until the last phase of use of these buildings in early eighth century AD. Thus, these three findspots offer an assemblage of finds from the sixth and seventh centuries AD.

Early Byzantine iron nails in Hadrianopolis consist of four groups: intact nails (**figs. 26.75–112**), nails with protected head parts (**figs. 26.113–165**), diverse fragments which consist of base parts and others (**figs. 26.166–194**) and diagnostic body fragments (**figs. 26.195–343**).

Typologically, most of the nails in Hadrianopolis have a sharp point on one end and a round head on the other, but a few headless nails are also present. A few of them are curved in the middle. Generally nails in Early Byzantine Hadrianopolis were made in four main forms for specialised purposes of use, and these typologies have been created based on the form of the nail heads. Type 1 includes nails with a round head (and some with a round body) (**figs. 75–100 and 113–150**). Type 2 covers nails with a knob head (**figs. 101–105 and 151–154**). Type 3 includes nails with a mushroom head (**figs. 106–112 and 155–157**). Type 4 covers nails with flat (or hammer-shaped) heads (**figs. 26.158–165**). Within these categories, some particular nails differ from the others, but they are few in number. The bodies of most of the nails are rectangular in section. Some long, pin-shaped iron nails were probably used to fasten the marble slabs paved in the Baths or Basilicas of the site, while the thicker and larger iron nails probably reinforced the timber construction. A few nails with short bends were presumably used as horseshoe nails. The presence of small protrusions (spikes) on the lower part of the nail heads (inside and not visible when used in the wooden architecture) has been detected.

Although the sizes of the Early Byzantine iron nails found in Hadrianopolis vary within themselves, their height changes approximately from 23.3 to 1.7 cm (an average of 17–14 cm), their thickness changes from 2.9 to 0.2 cm (an average of 1–2 cm) and size of their head parts changes from 4.2 to 1.0 cm (an average of 2–3 cm).

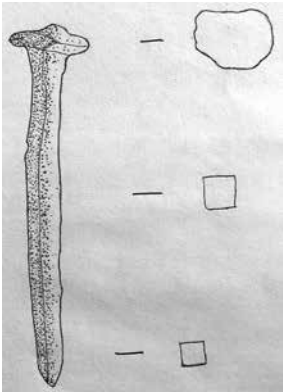
As for their production techniques, they are mostly made from wrought iron, which is an iron alloy with a very low carbon content (less than 0.08%) in contrast to that of cast iron (2.1% to 4%). There are very few bronze (or



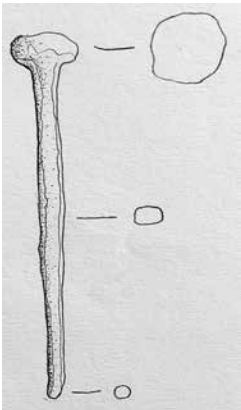
Map 26.3. Map of the findspots for the iron nails (and pegs) used in the architecture during the Roman and Byzantine periods through Turkish annual reports (by S. Patacı, 2020).



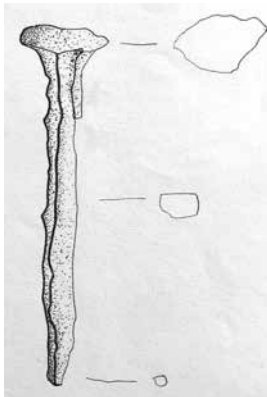
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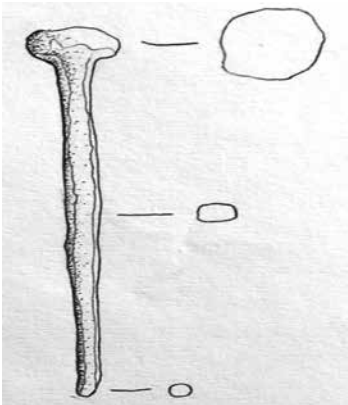
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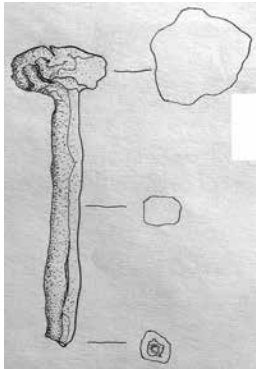
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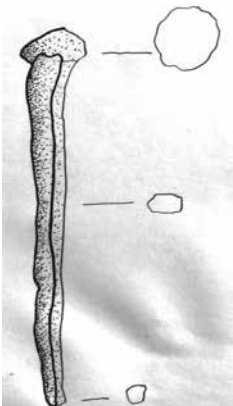
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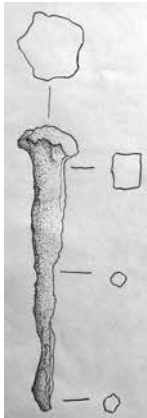
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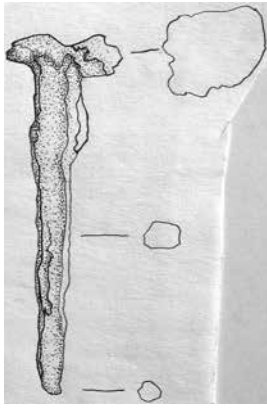
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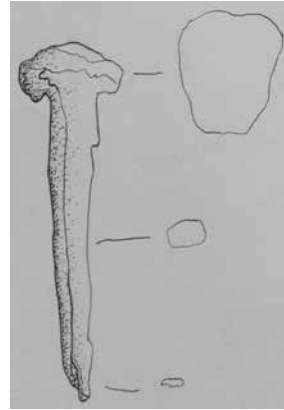
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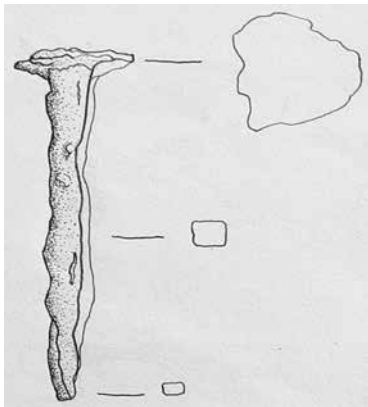
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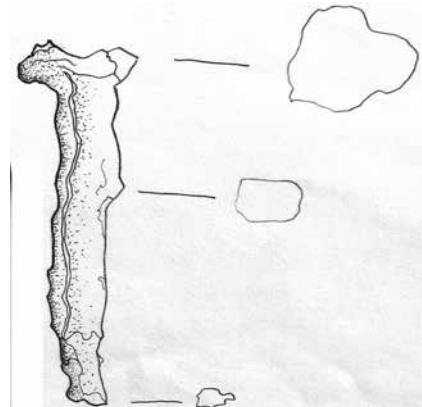
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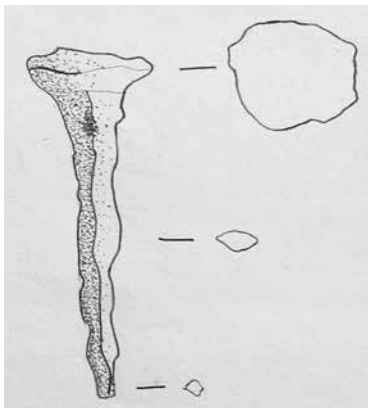
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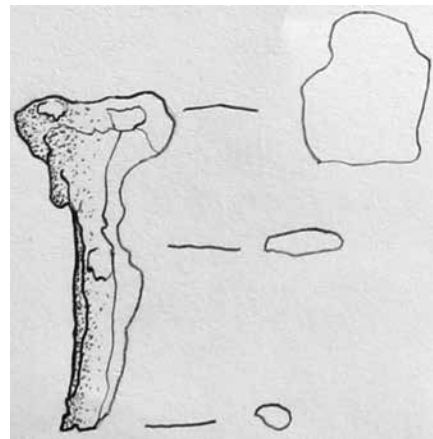
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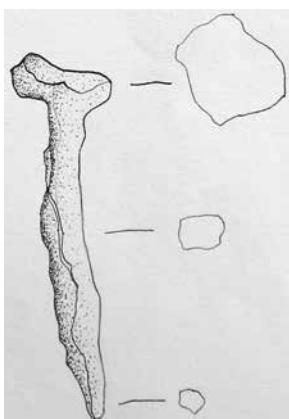
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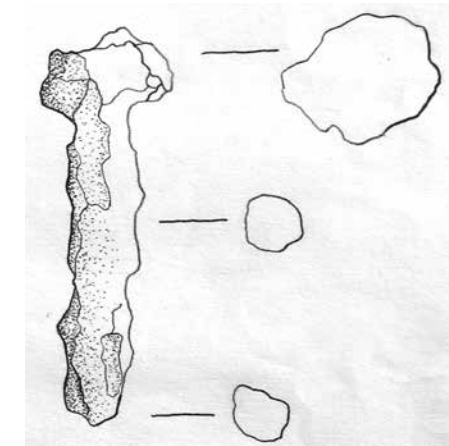
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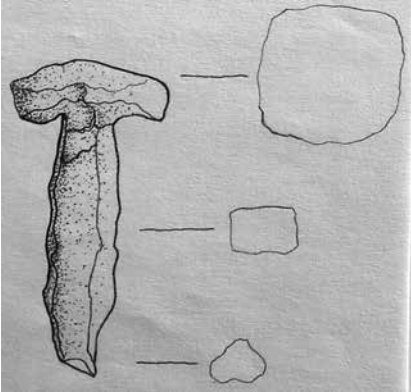
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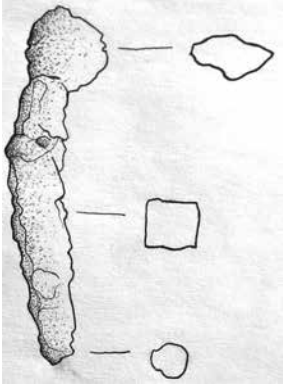
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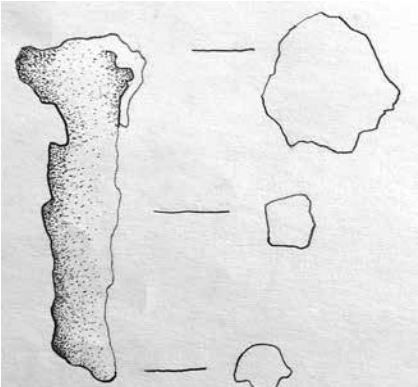
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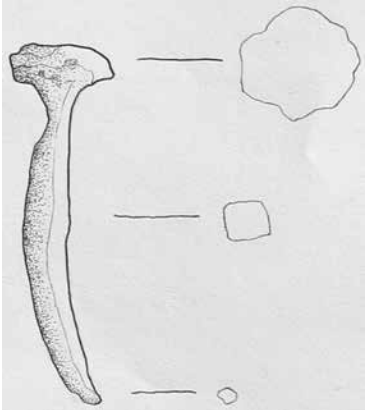
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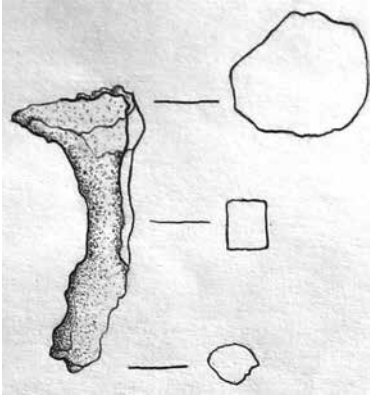
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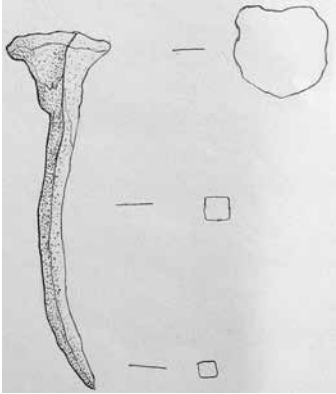
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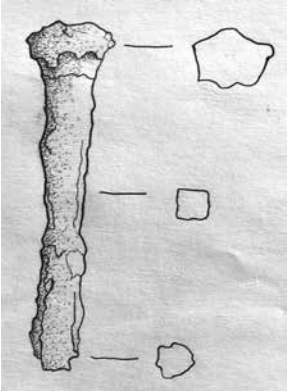
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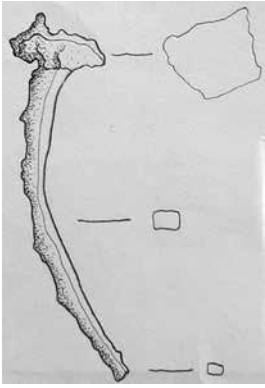
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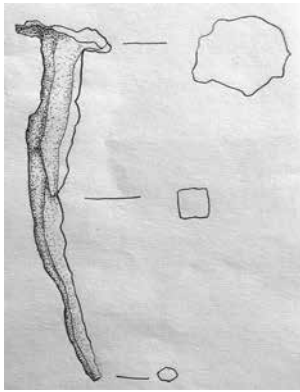
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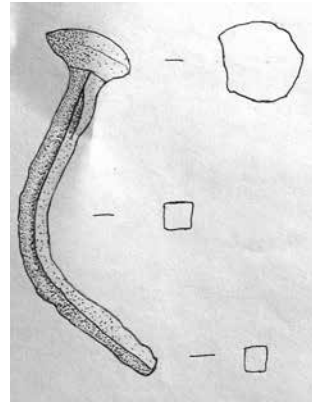
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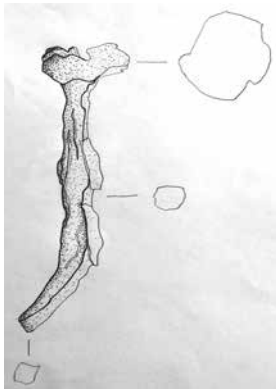
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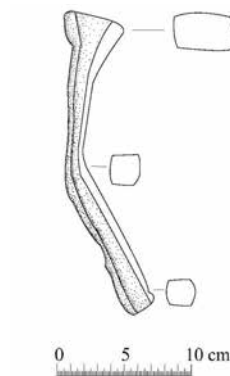
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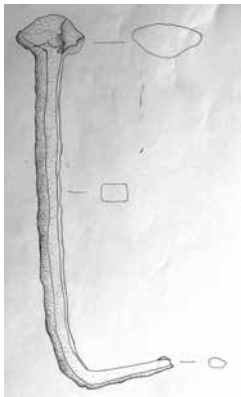
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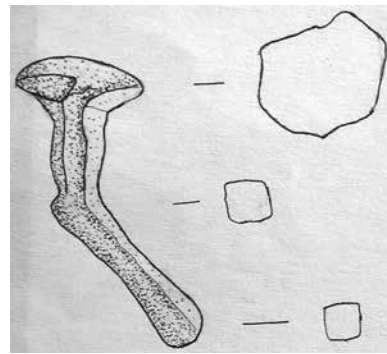
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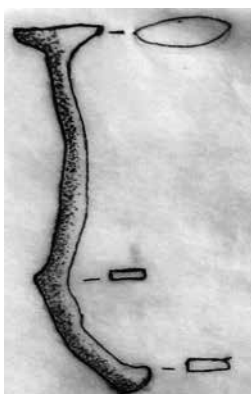
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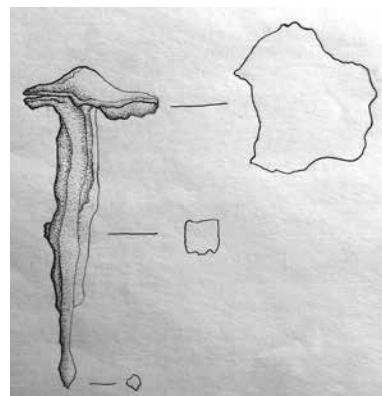
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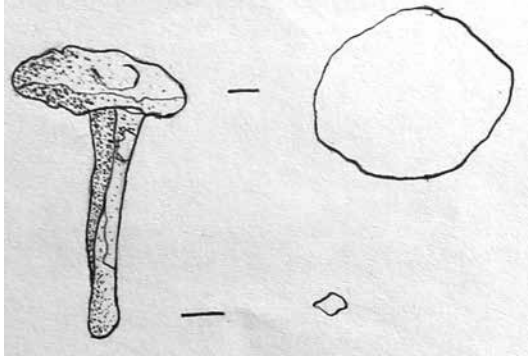
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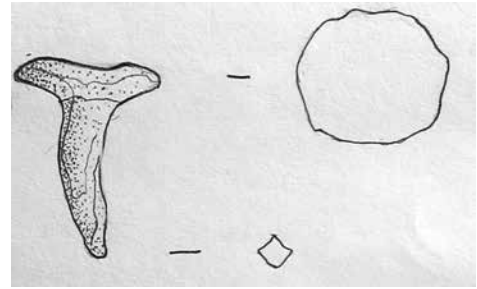
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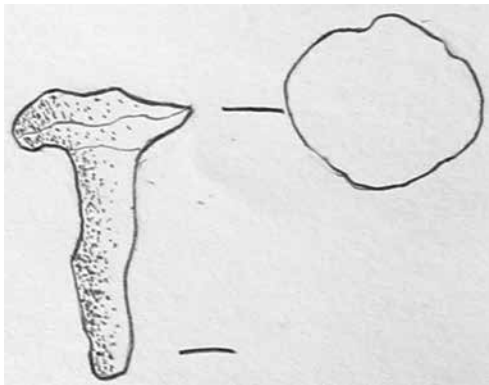
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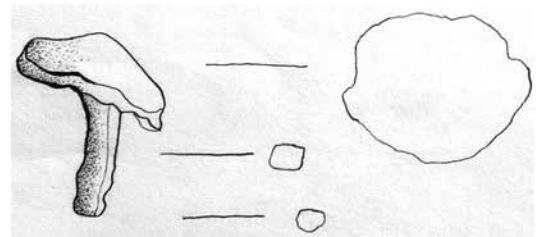
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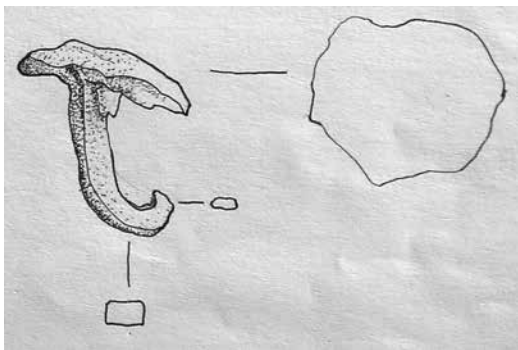
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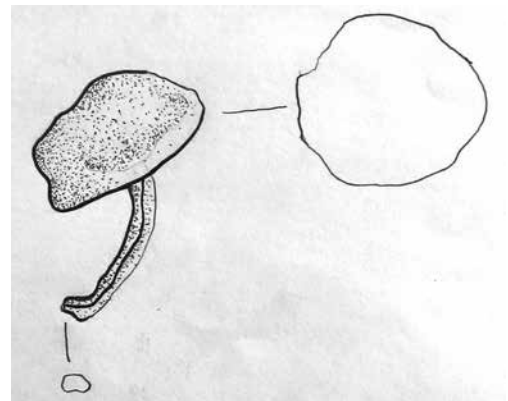
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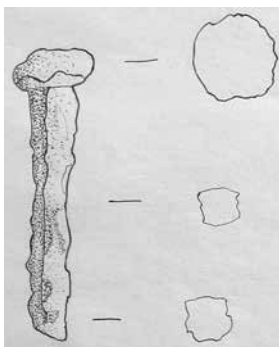


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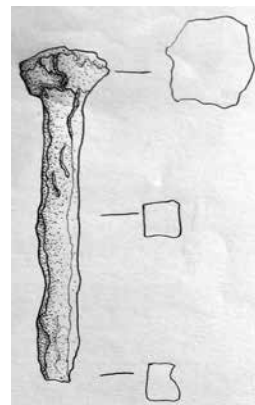


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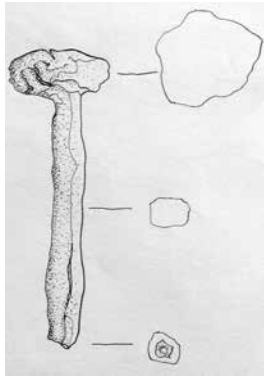
Figures 26.75-112. Other intact iron nails (by E. Lafli, 2008).



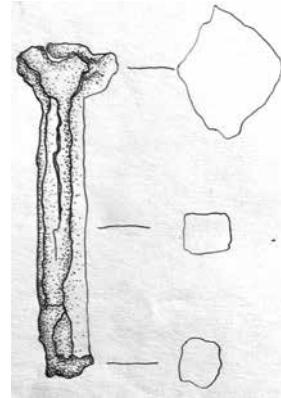
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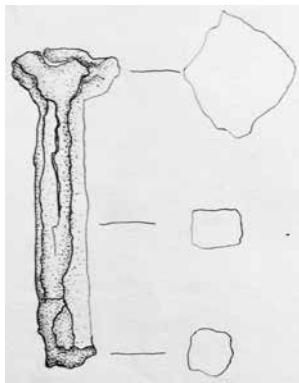
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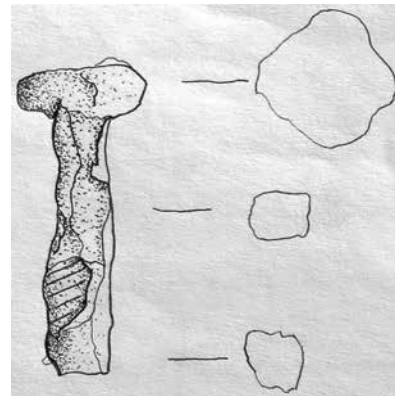
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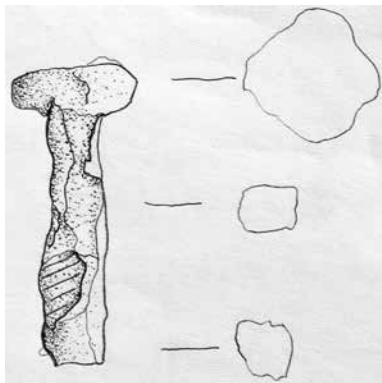
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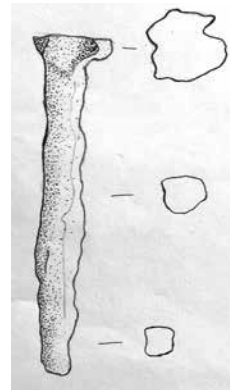
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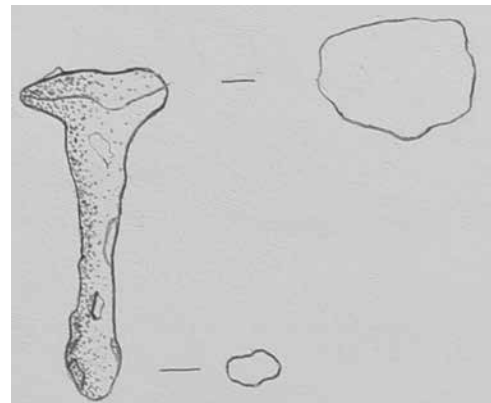
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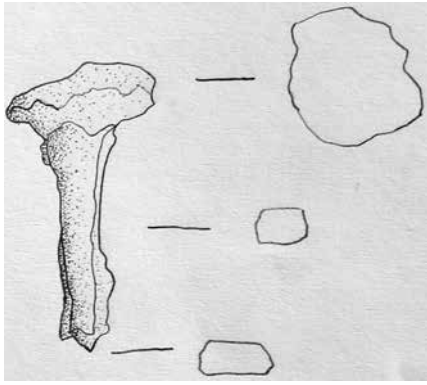
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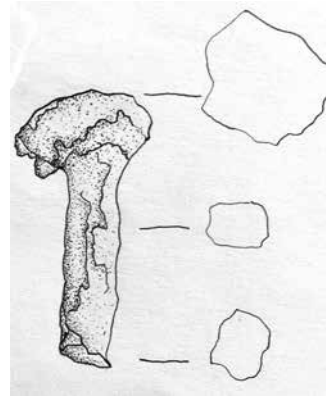
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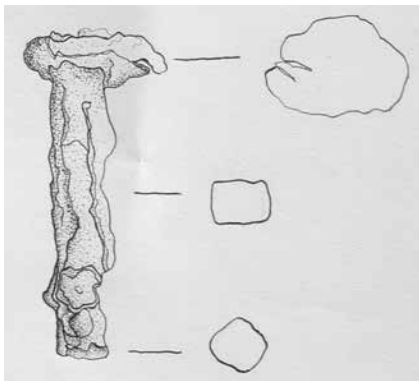
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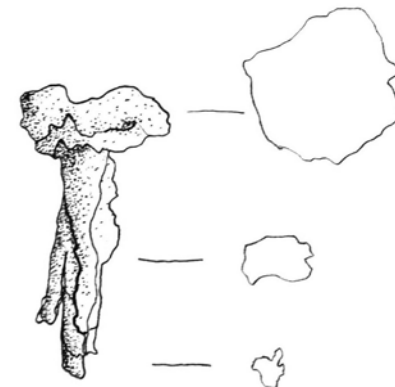
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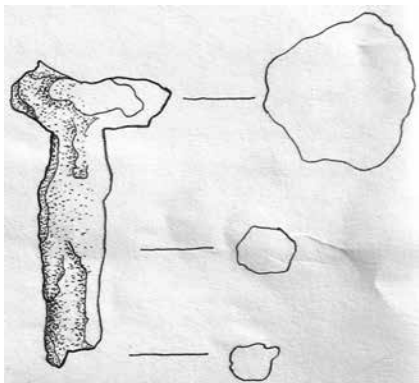
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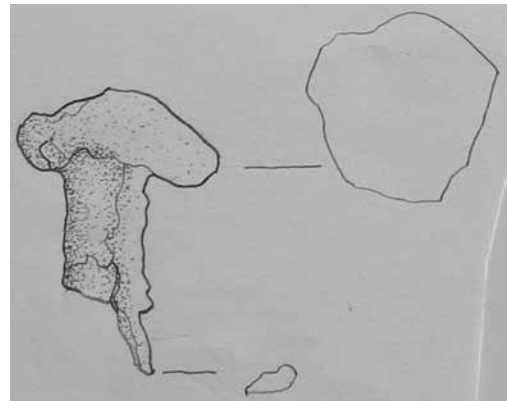
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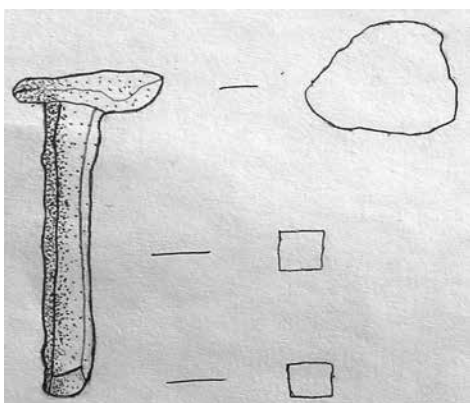
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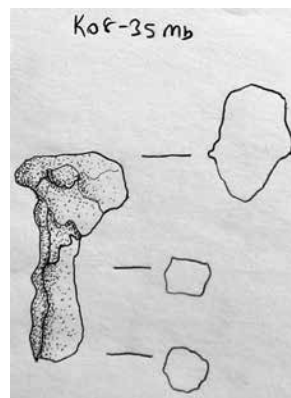
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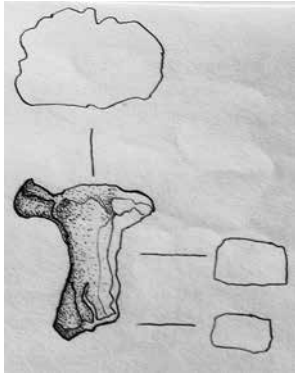
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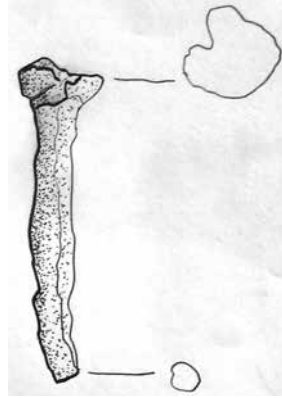
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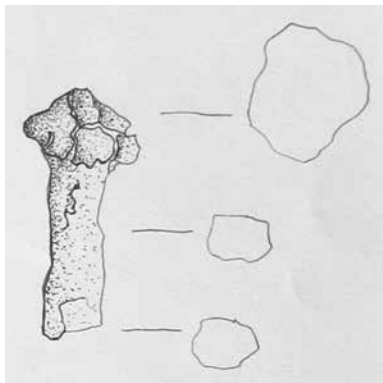
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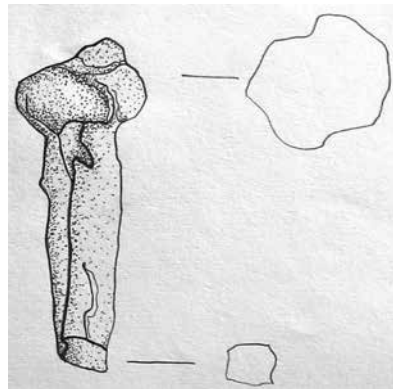
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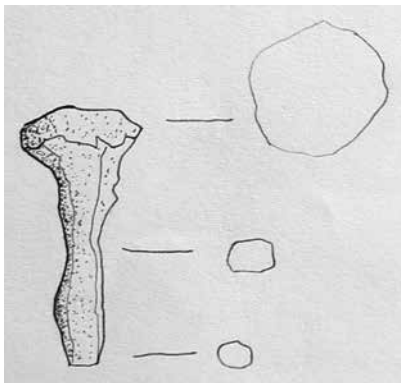
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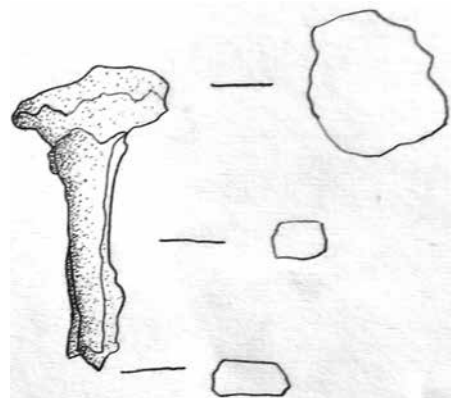
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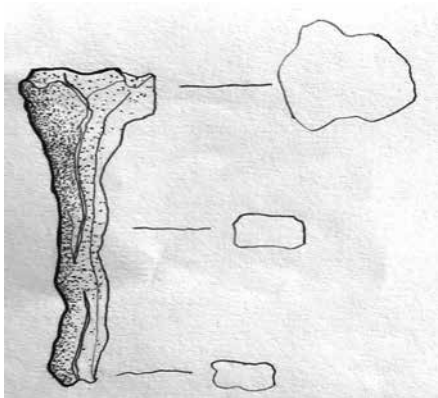
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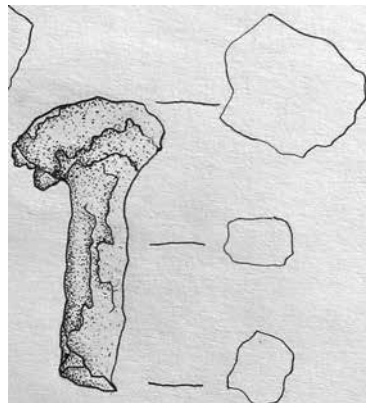
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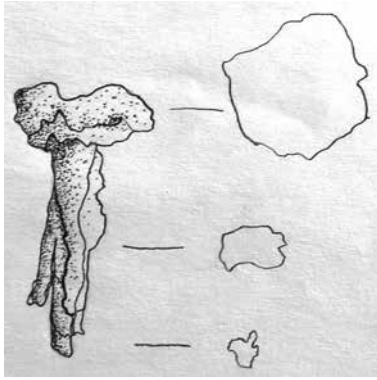
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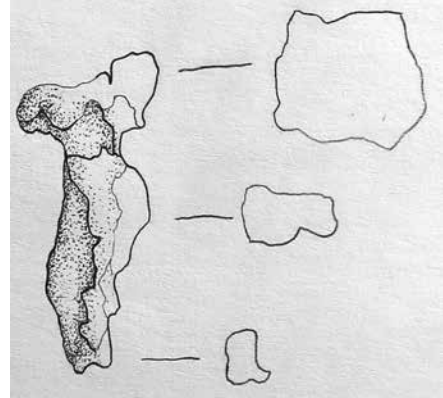
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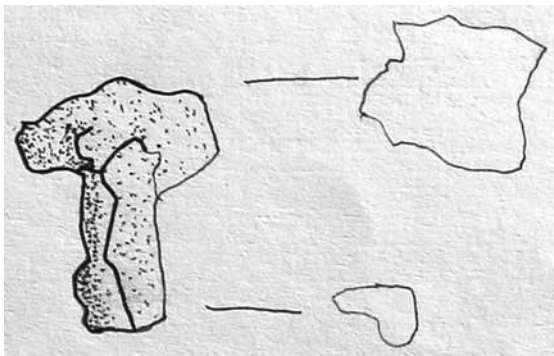
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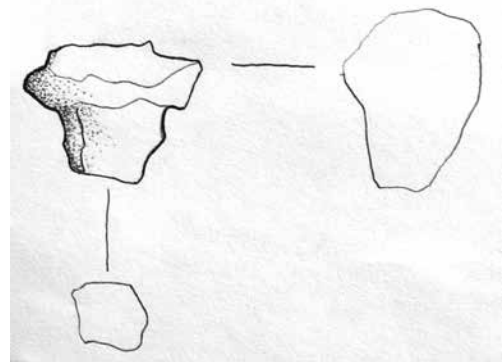
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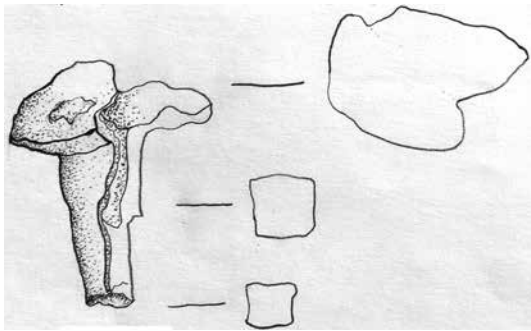
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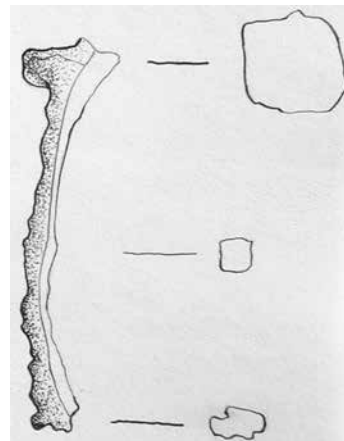
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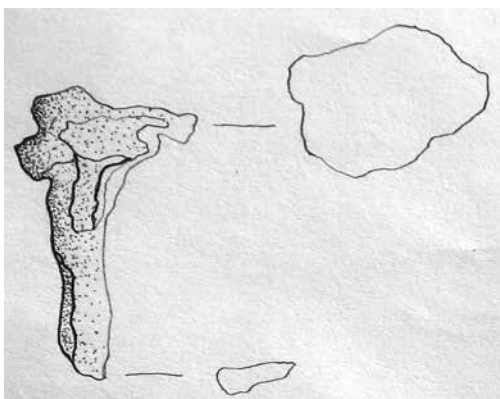
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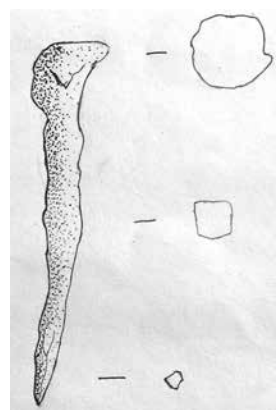
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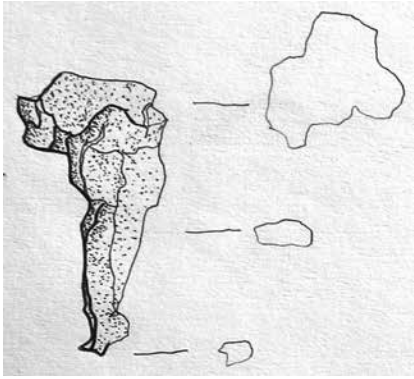
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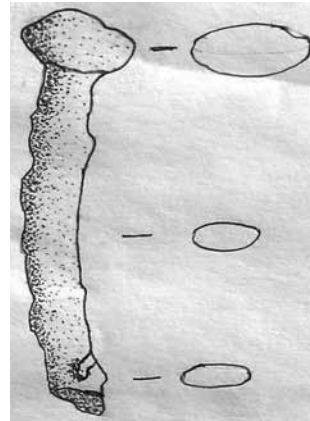
26.142



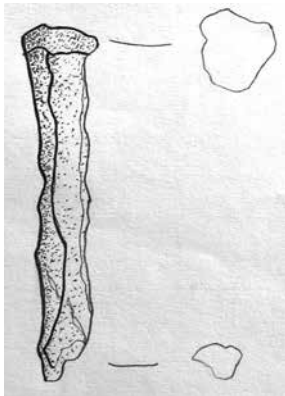
26.146



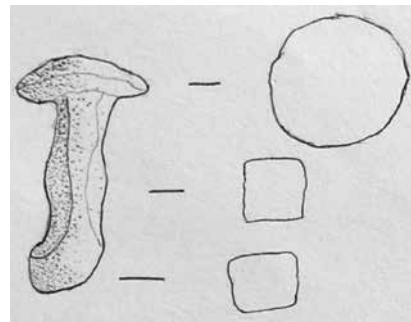
26.147



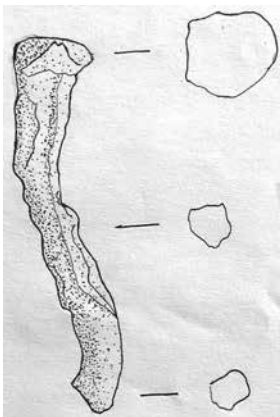
26.151



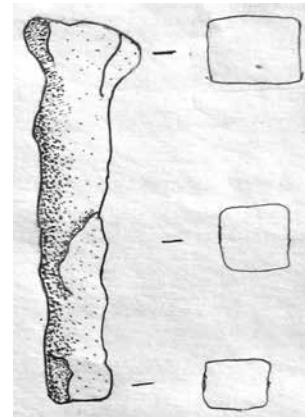
26.148



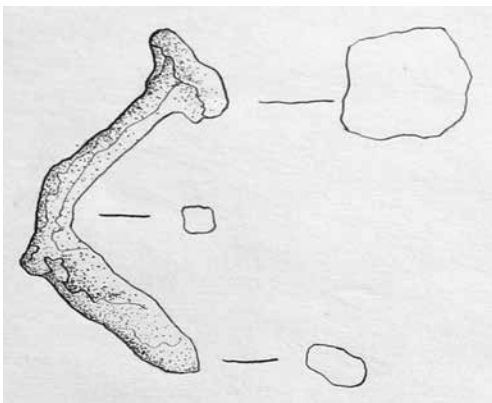
26.152



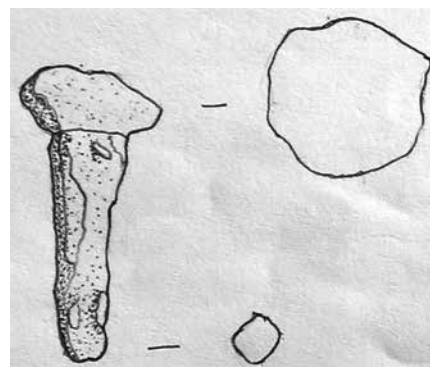
26.149



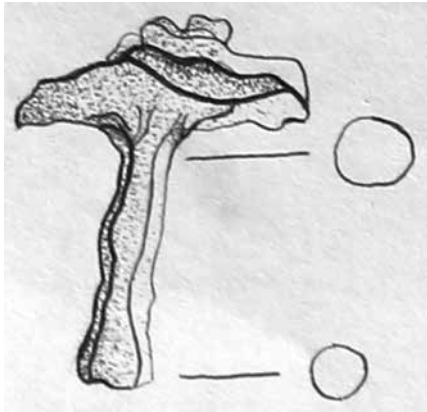
26.153



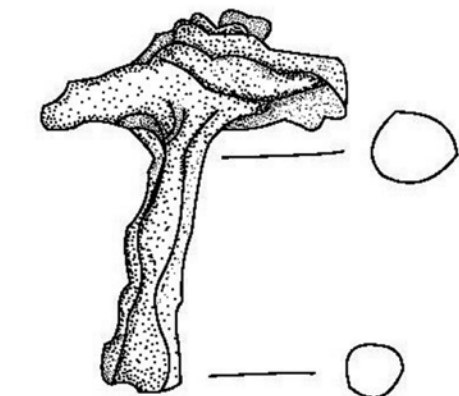
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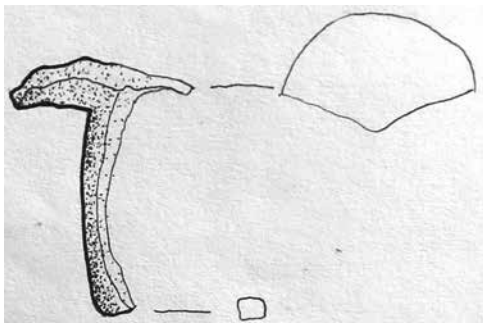
26.154



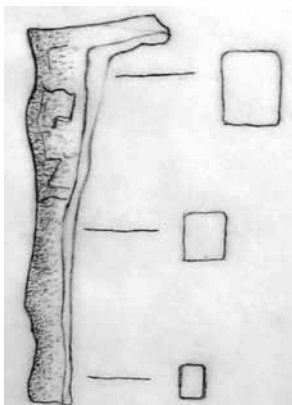
26.155



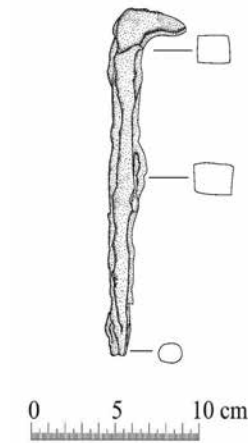
26.156



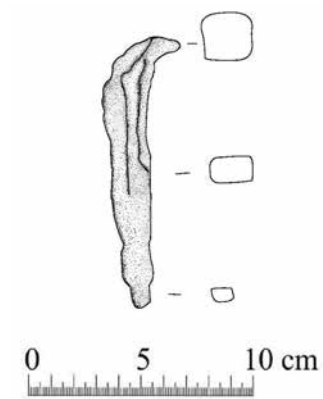
26.157



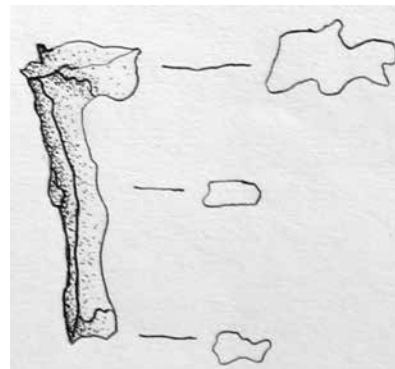
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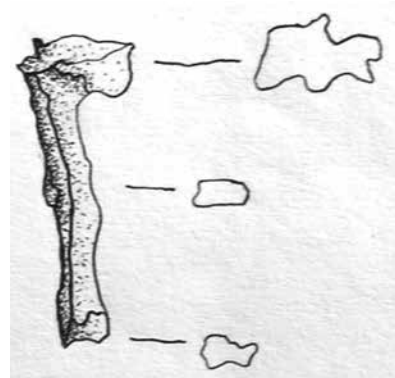
26.159



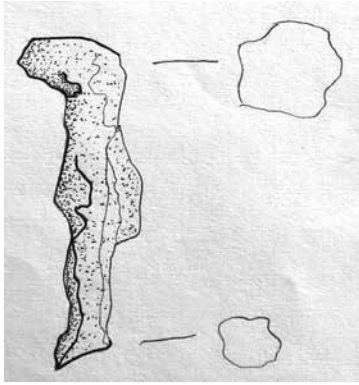
26.160



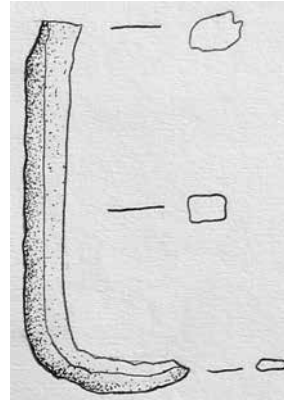
26.161



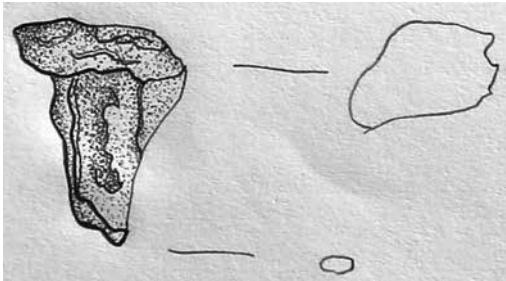
26.162



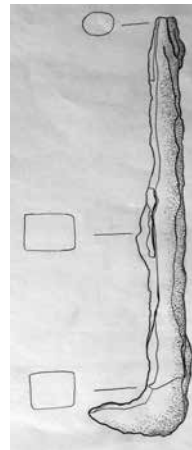
26.163



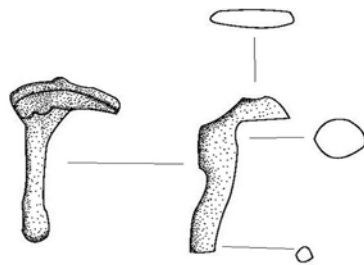
26.166



26.164

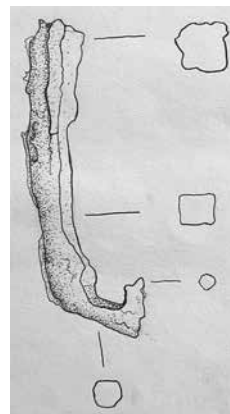


26.167



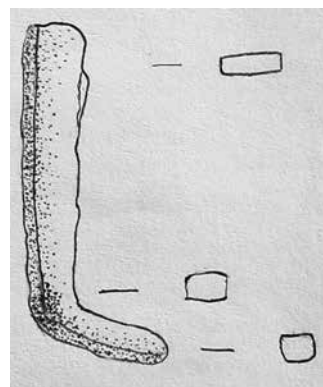
0 5 10 cm

26.165

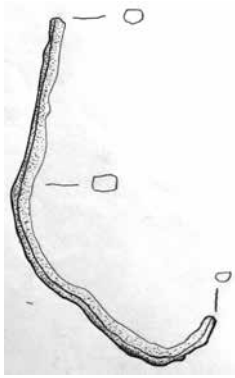


26.168

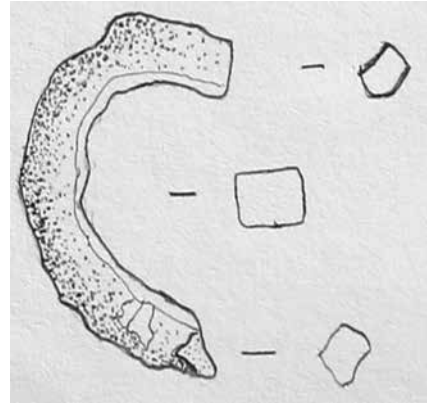
Figures 26.113-165. Fragments of iron nails with head parts (by E. Lafti, 2008).



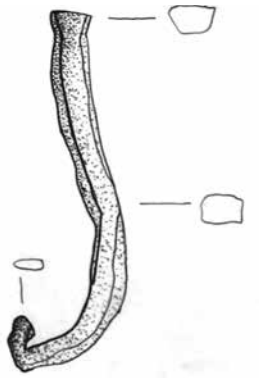
26.169



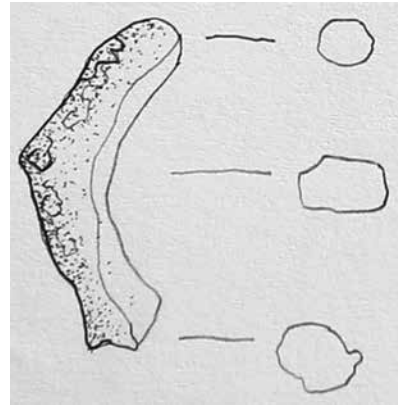
26.170



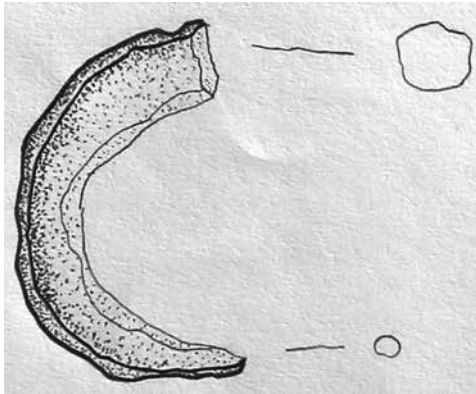
26.174



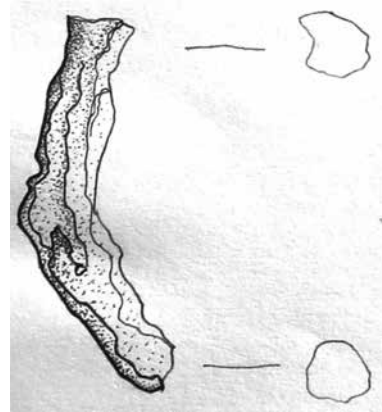
26.171



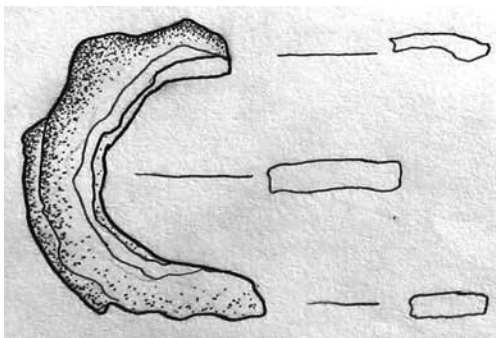
26.175



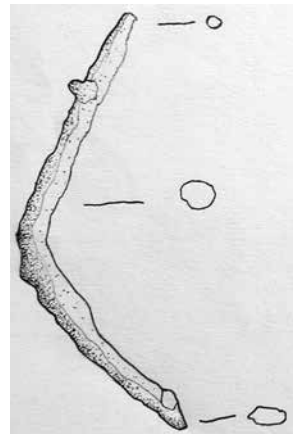
26.172



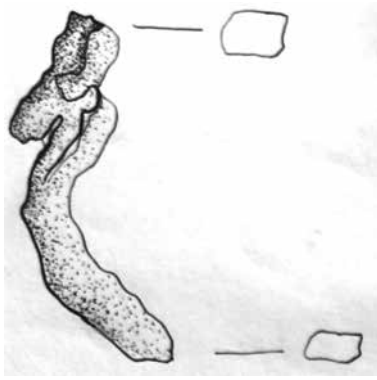
26.176



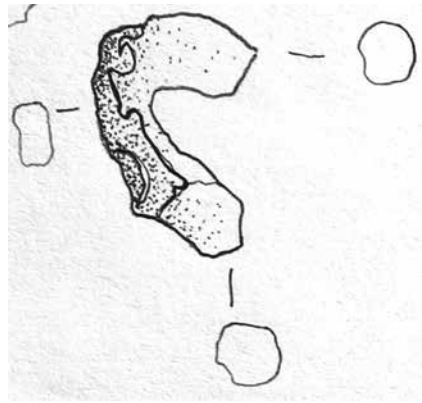
26.173



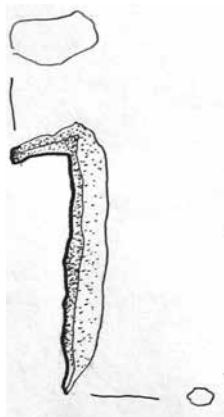
26.177



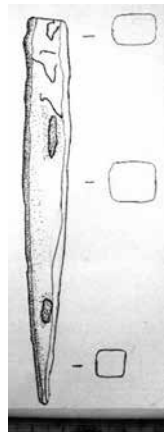
26.178



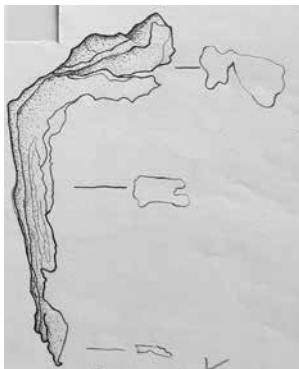
26.182



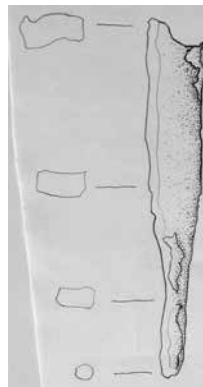
26.179



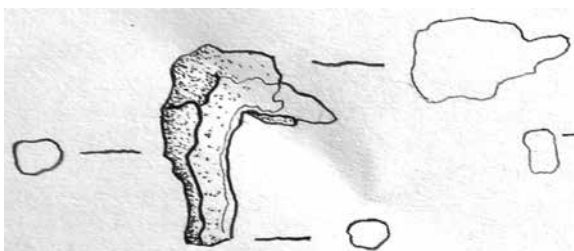
26.183



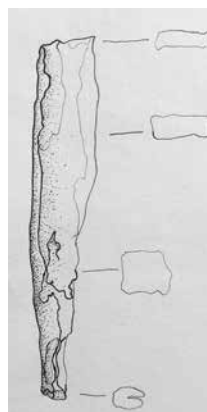
26.180



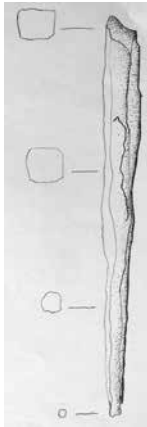
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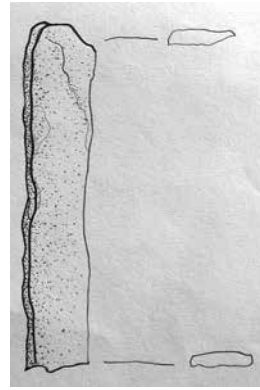
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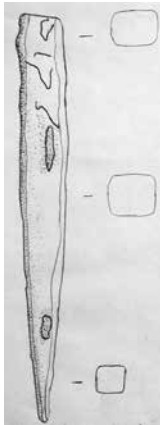
26.185



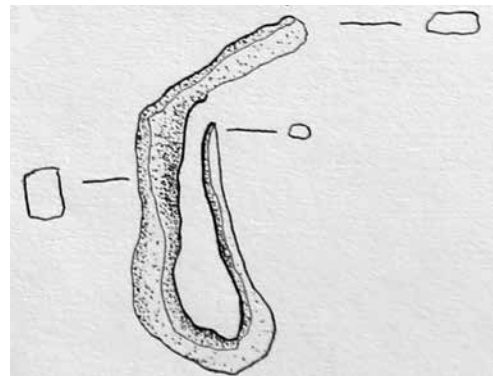
26.186



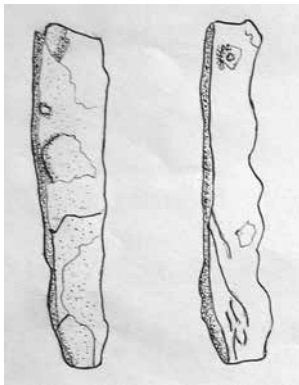
26.190



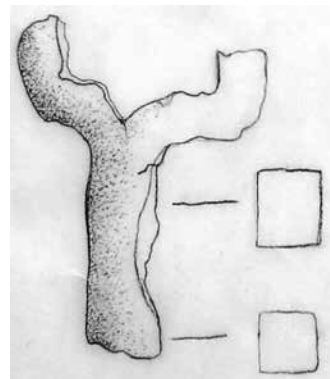
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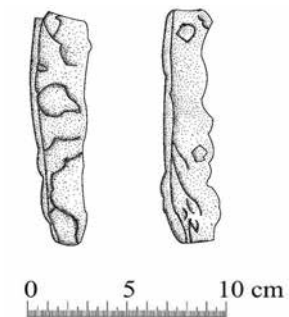
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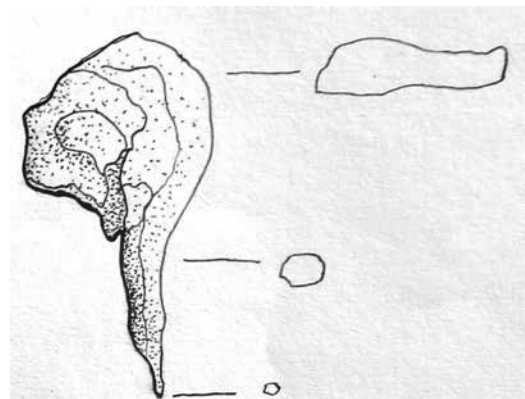
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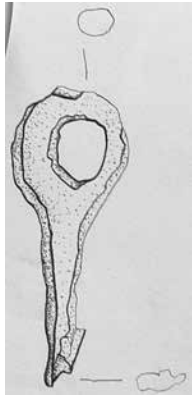
26.192



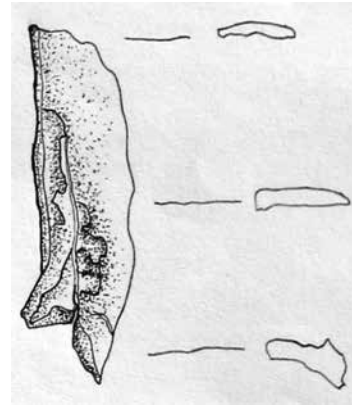
26.189



26.193

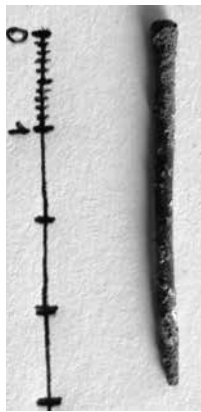


26.194

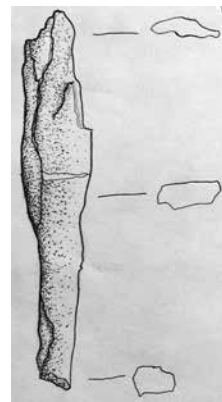


26.198

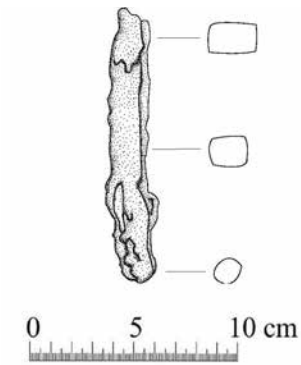
Figures 26.166-194. Fragments of iron nails with diverse parts (by E. Laflı, 2008).



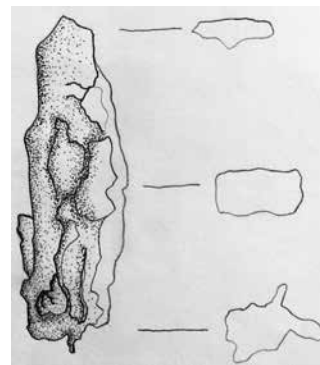
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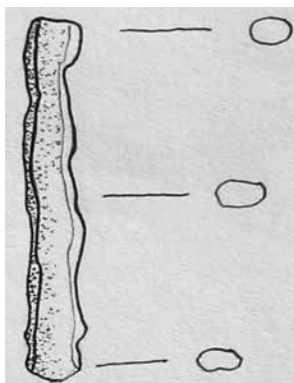
26.199



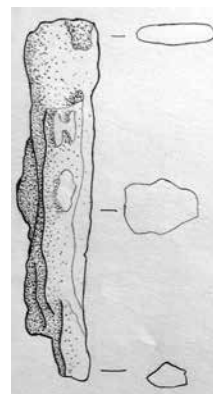
26.196



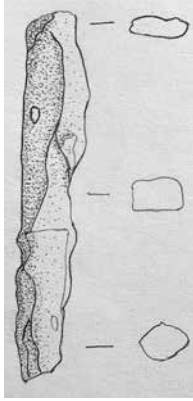
26.200



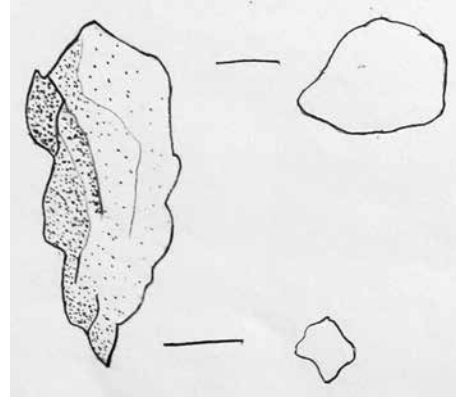
26.197



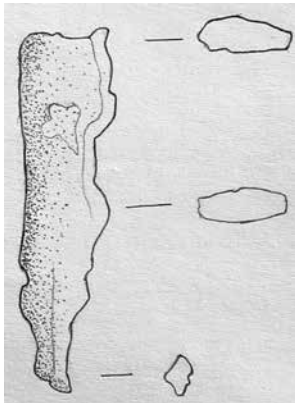
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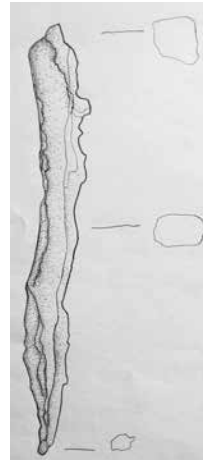
26.202



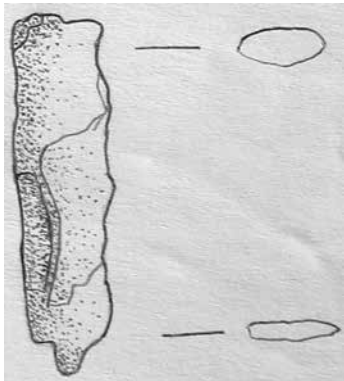
26.206



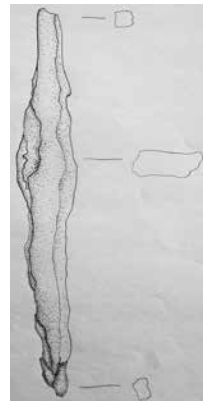
26.203



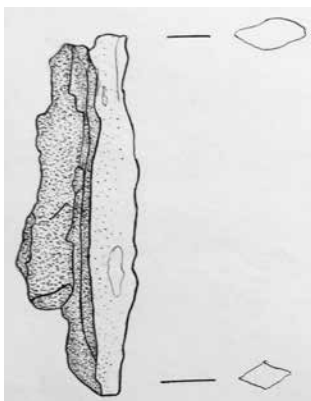
26.207



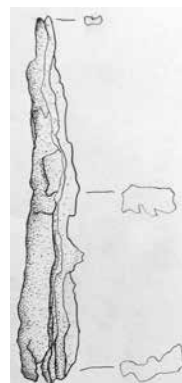
26.204



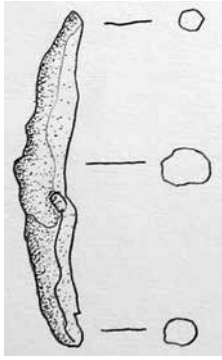
26.208



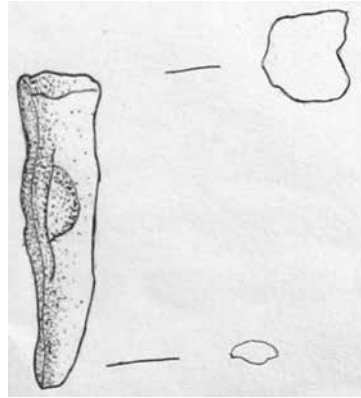
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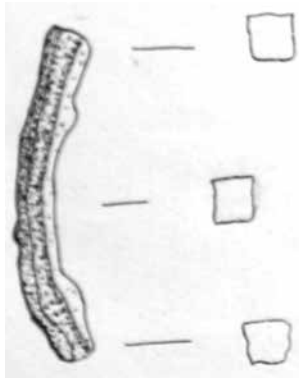
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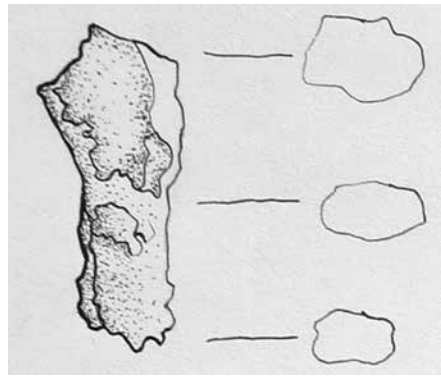
26.210



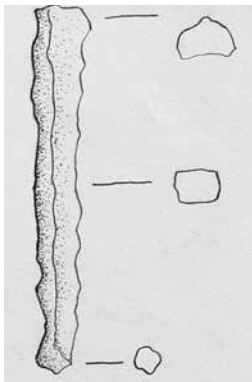
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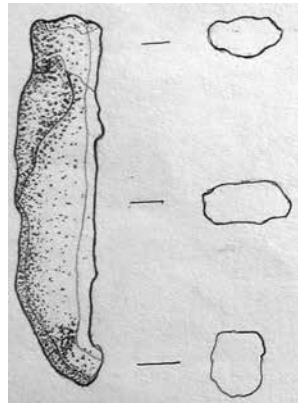
26.211



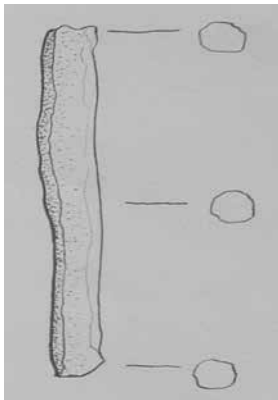
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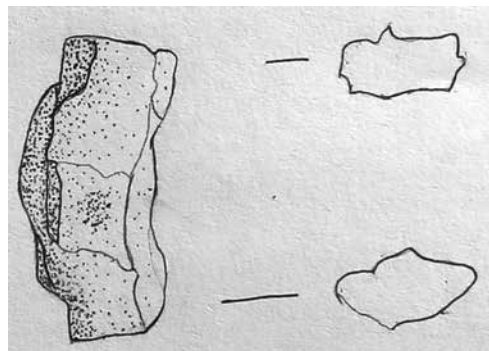
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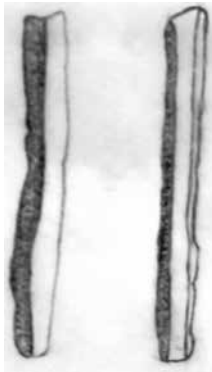
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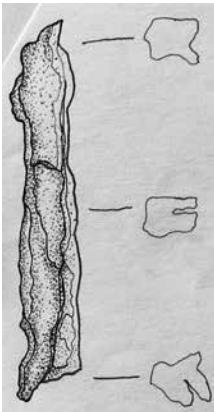
26.213



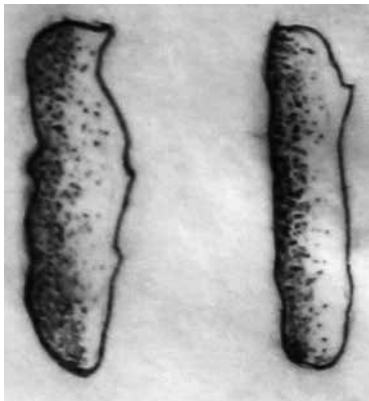
26.217



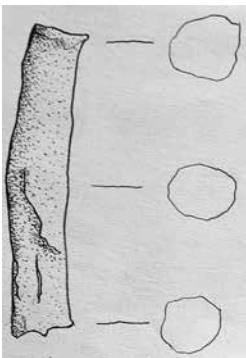
26.218



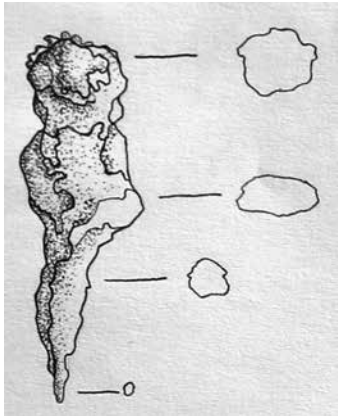
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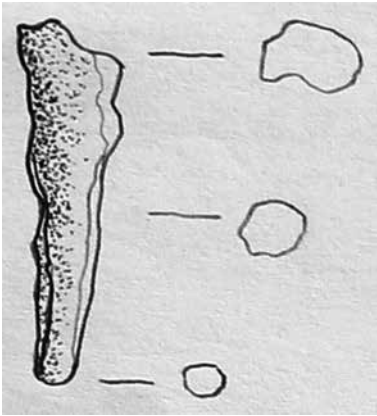
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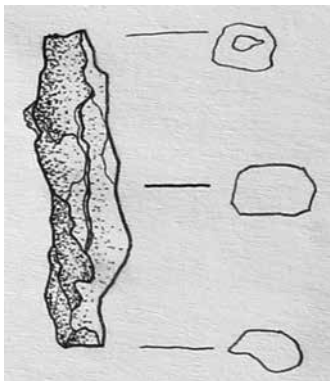
26.223



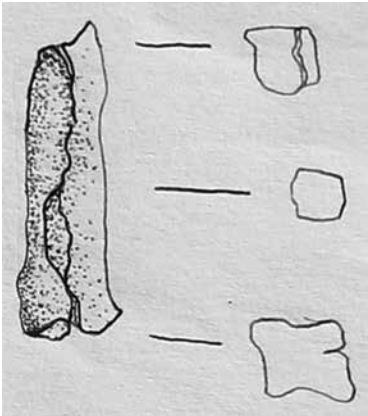
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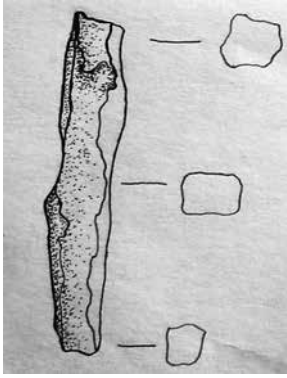
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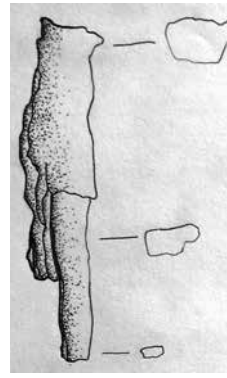
26.221



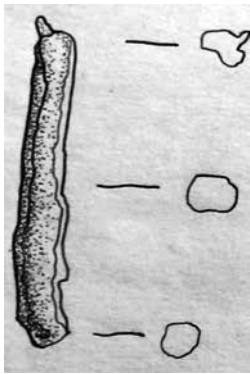
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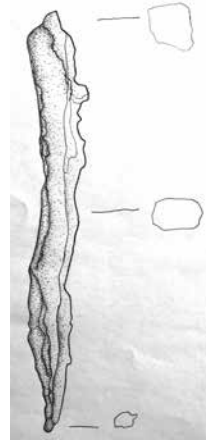
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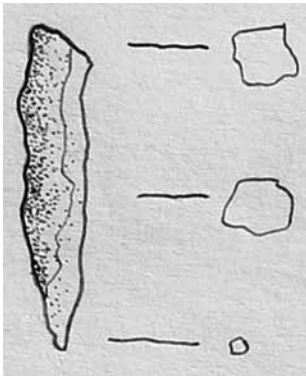
26.230



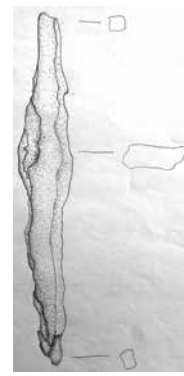
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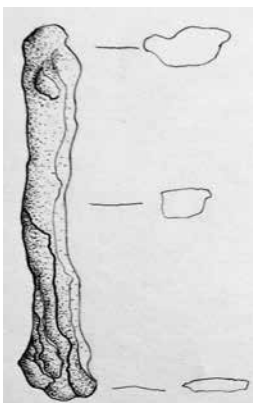
26.231



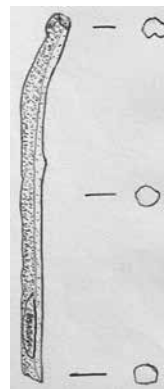
26.228



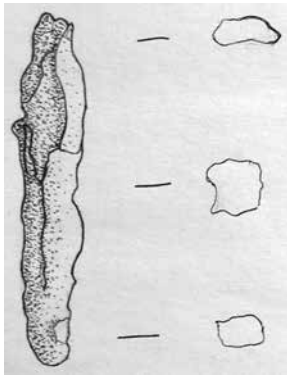
26.232



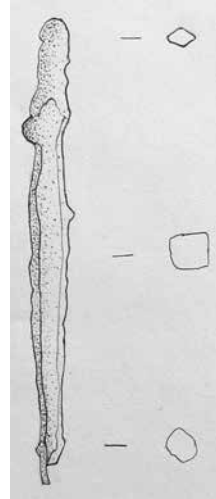
26.229



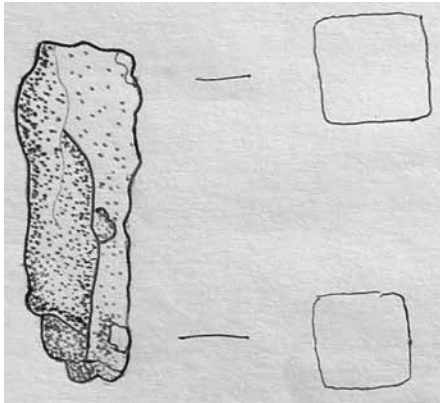
26.233



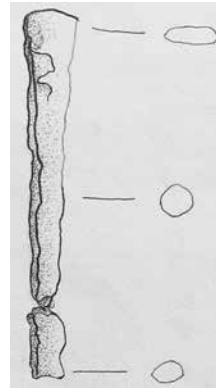
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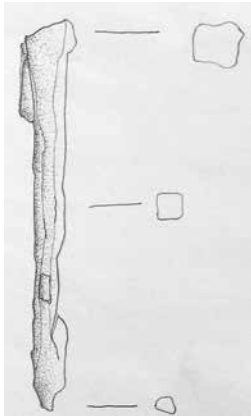
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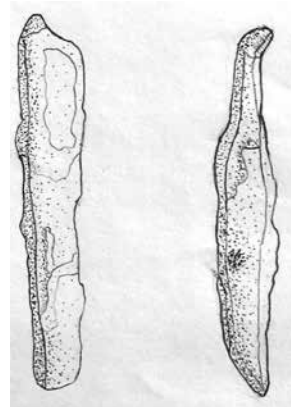
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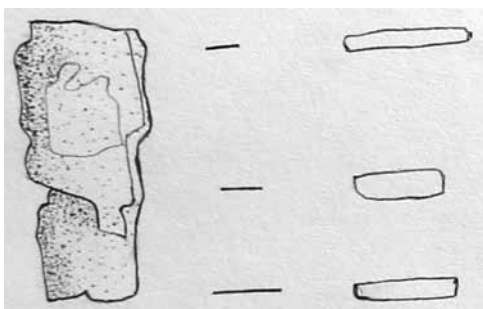
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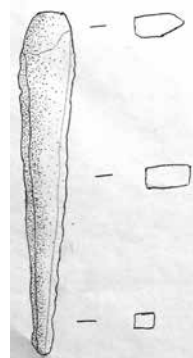
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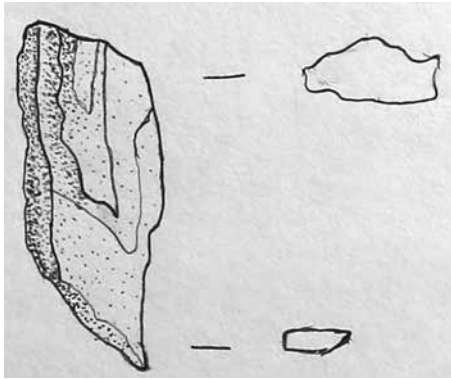
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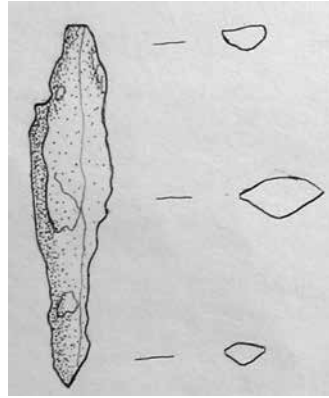
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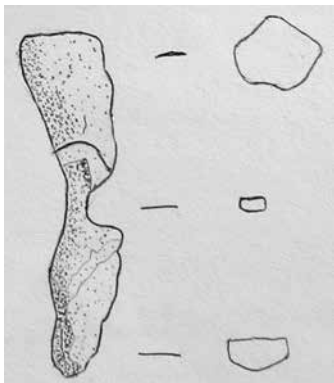
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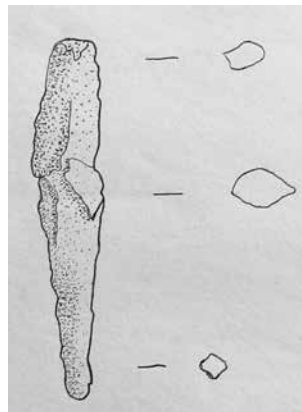
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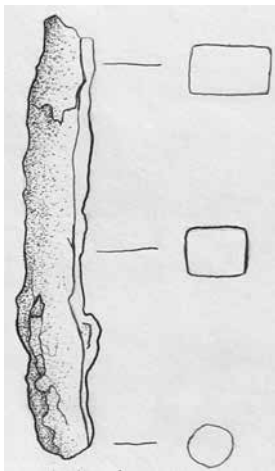
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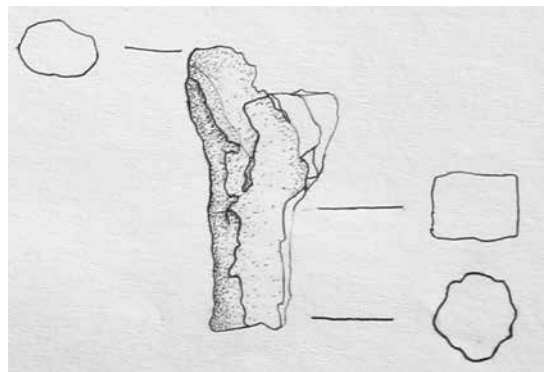
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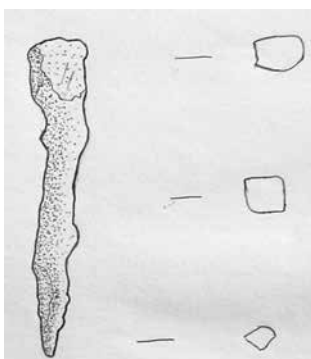
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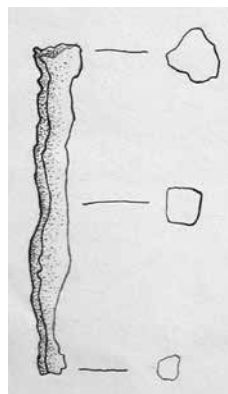
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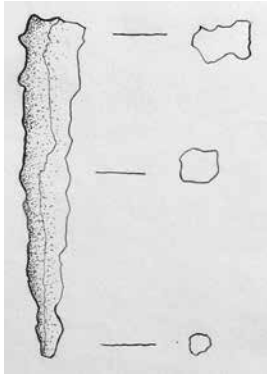
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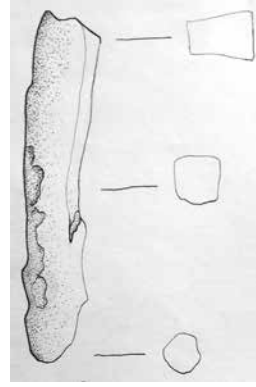
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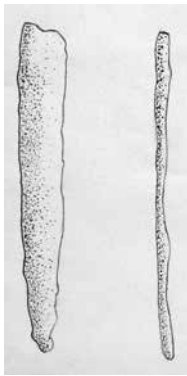
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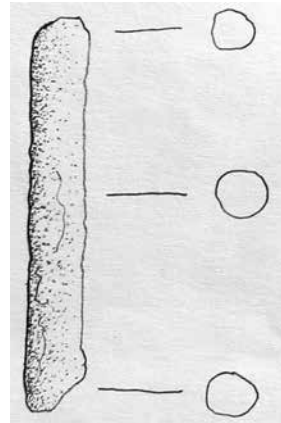
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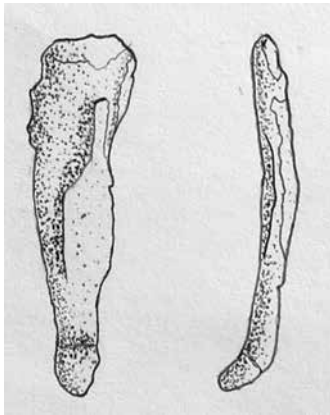
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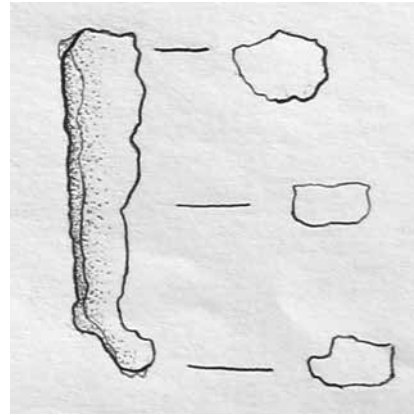
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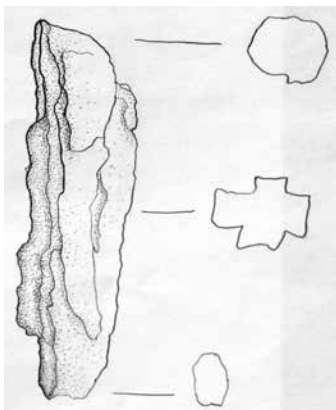
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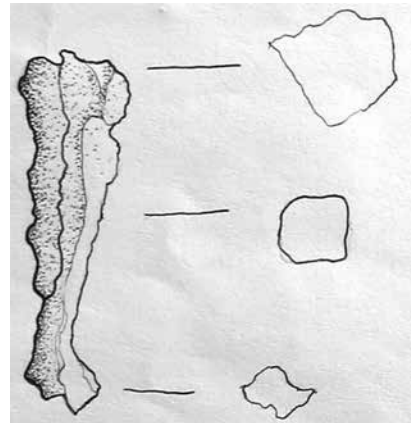
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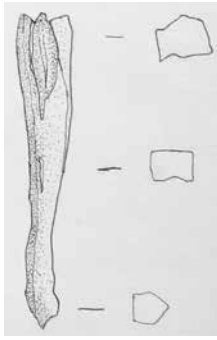
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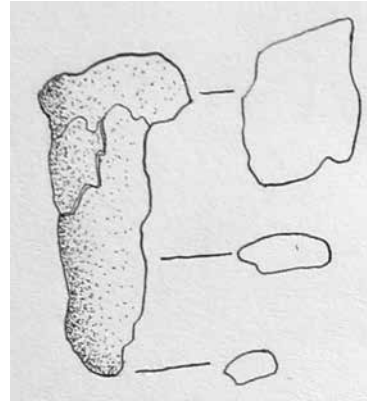
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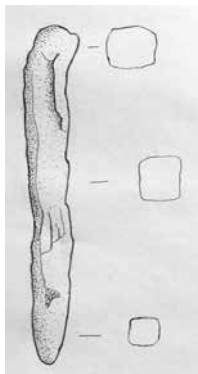
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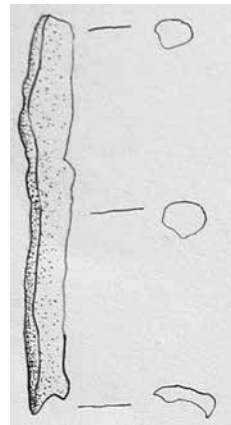
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26.262



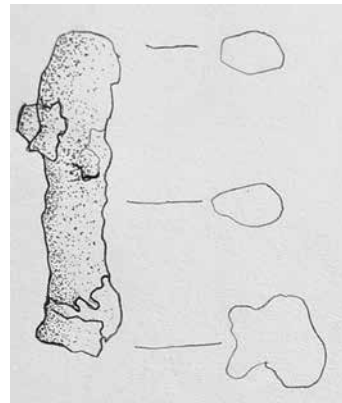
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26.263



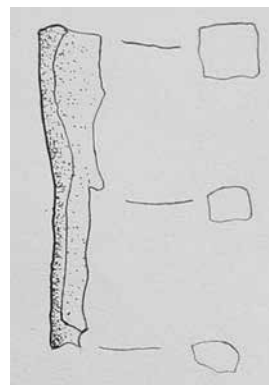
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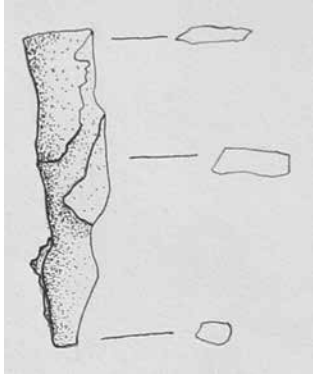
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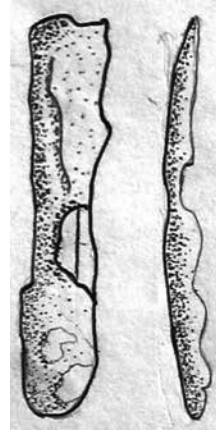
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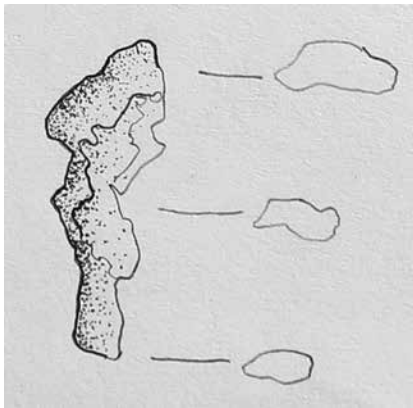
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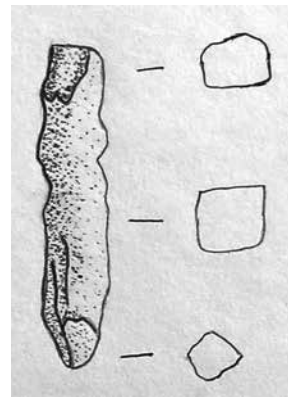
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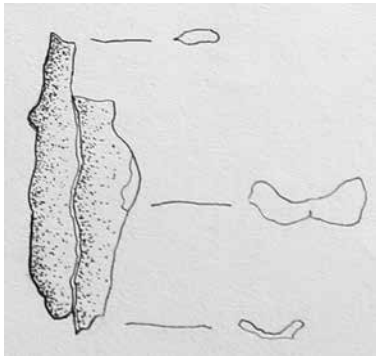
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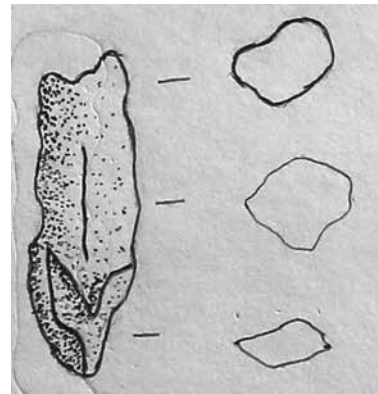
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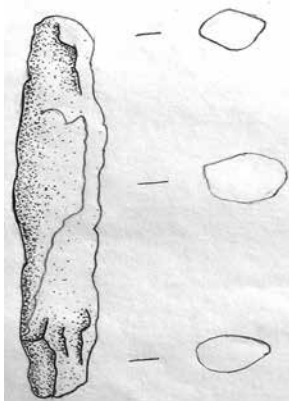
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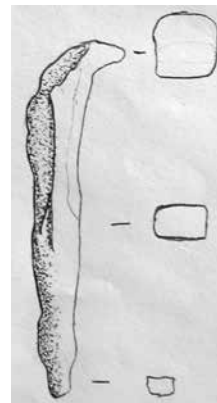
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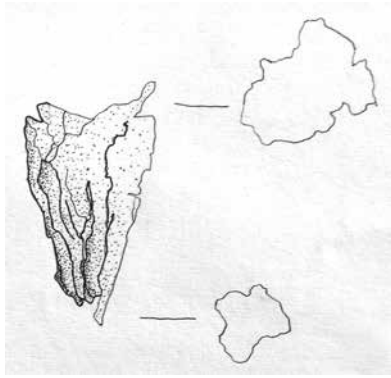
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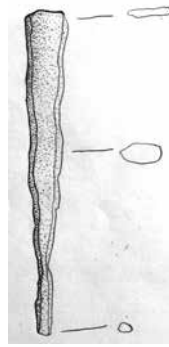
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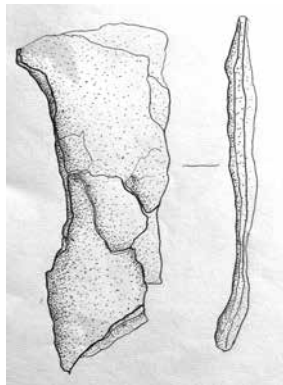
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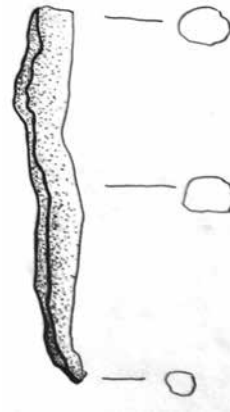
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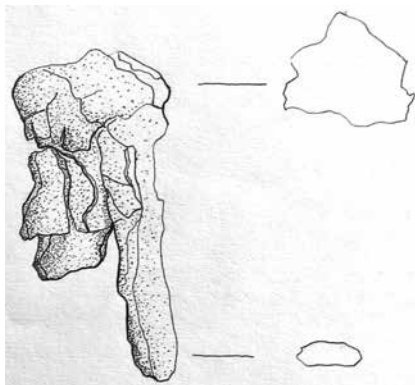
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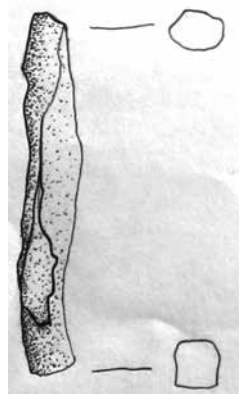
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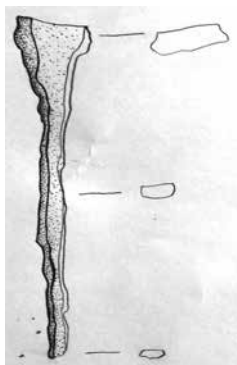
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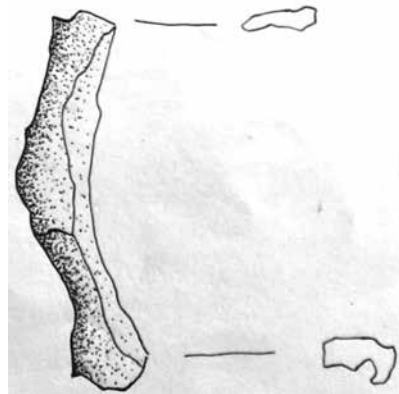
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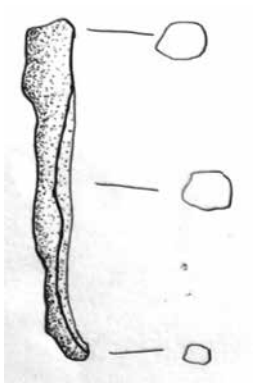
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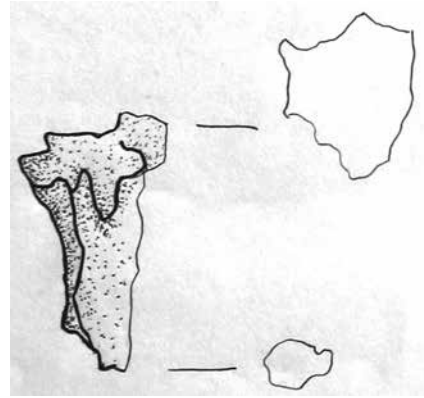
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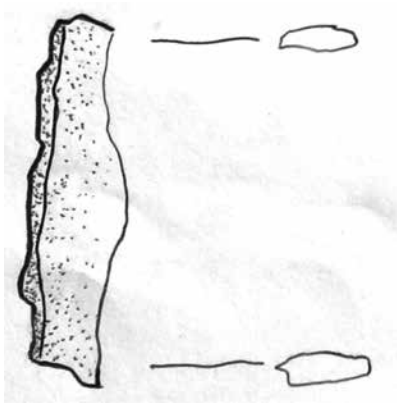
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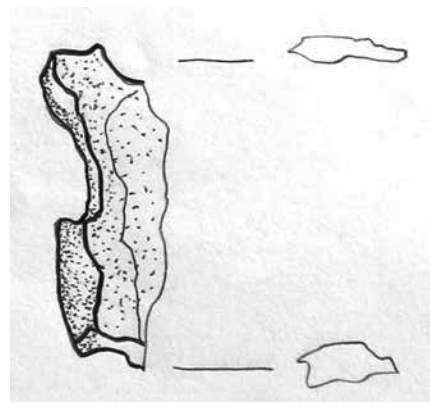
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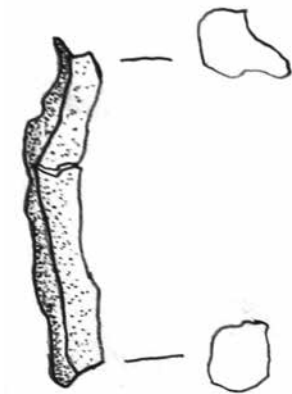
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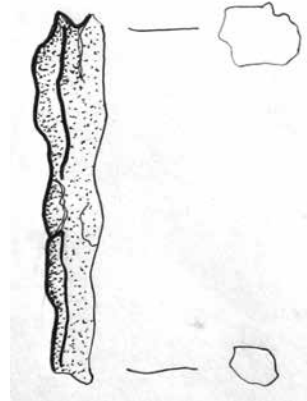
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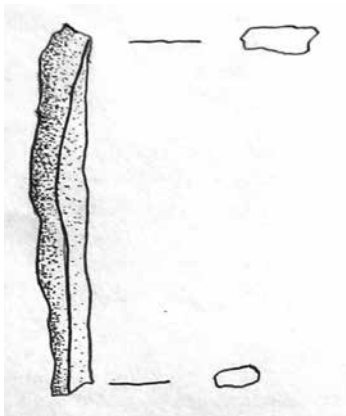
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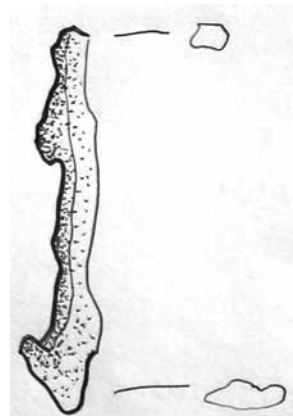
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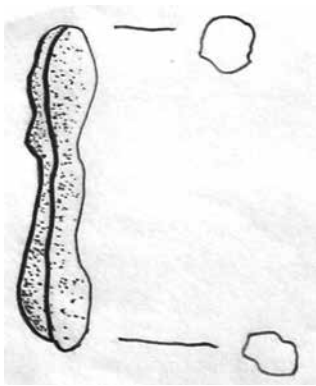
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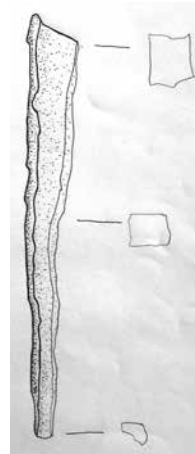
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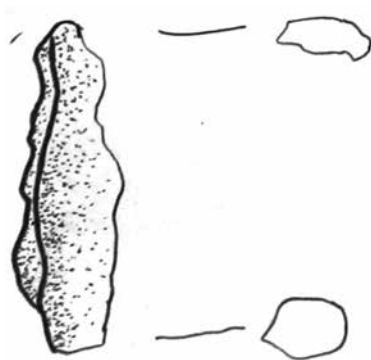
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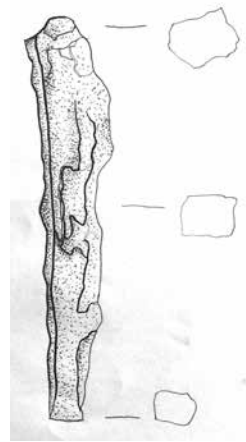
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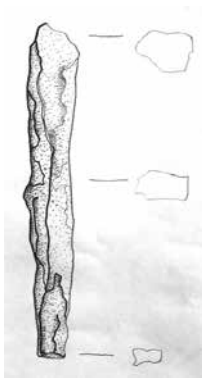
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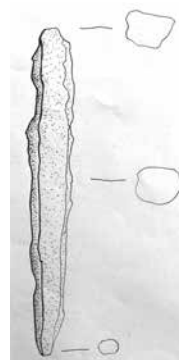
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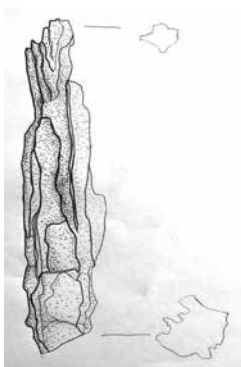
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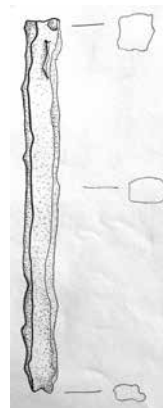
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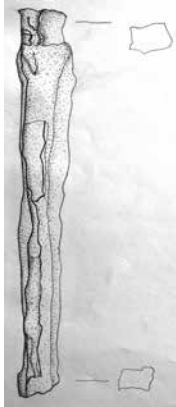
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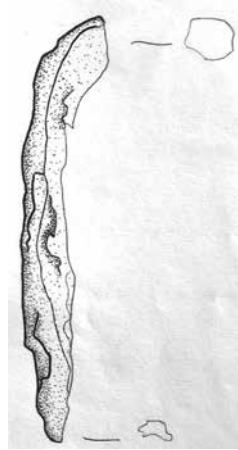
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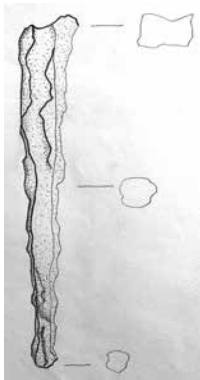
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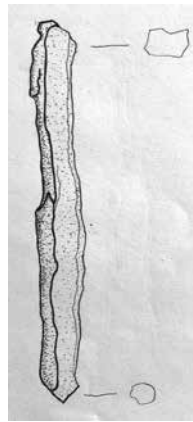
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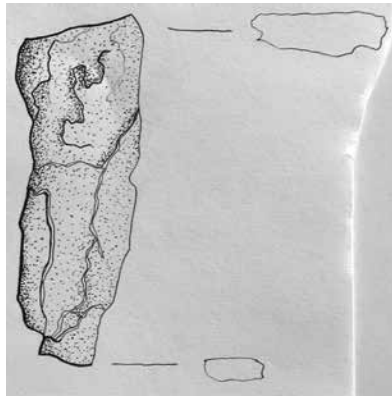
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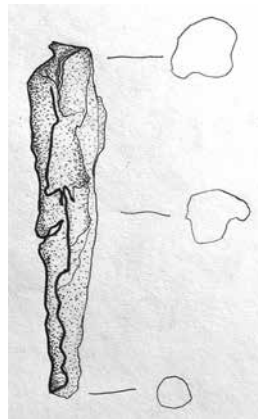
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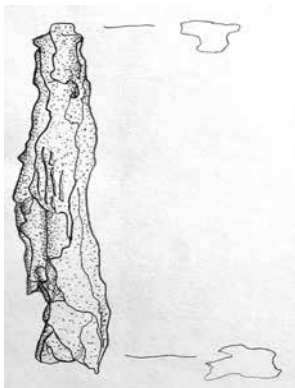
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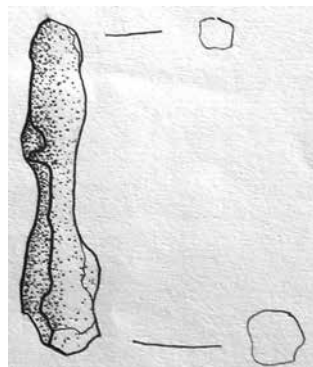
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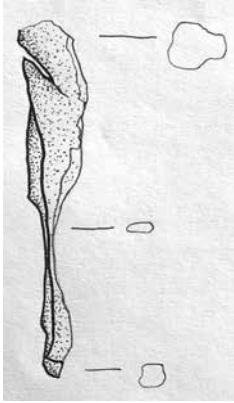
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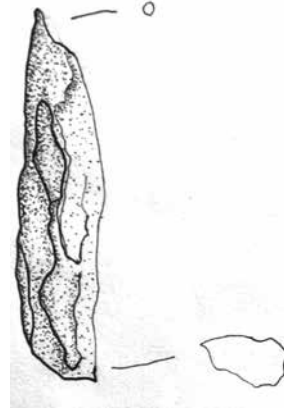
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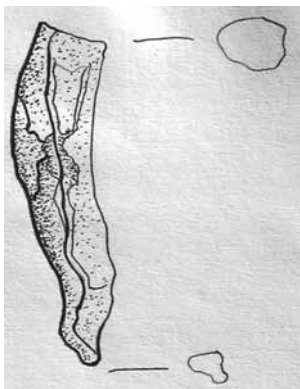
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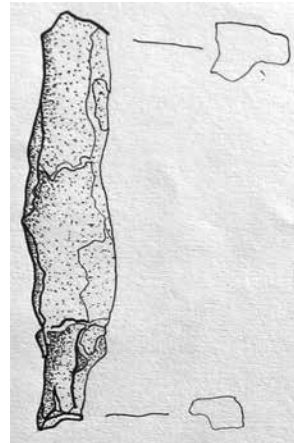
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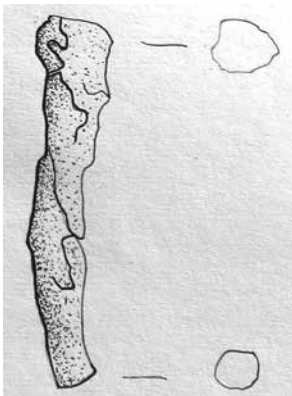
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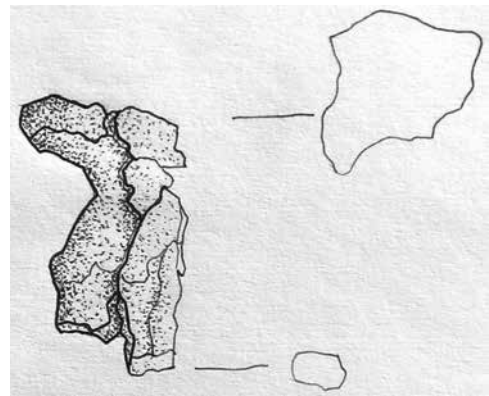
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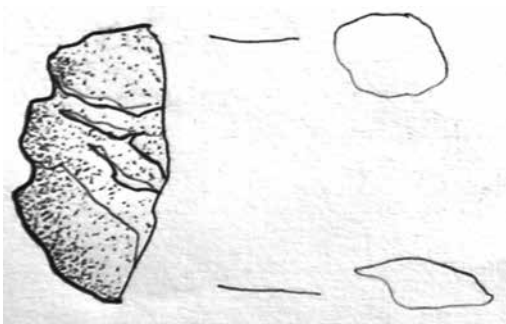
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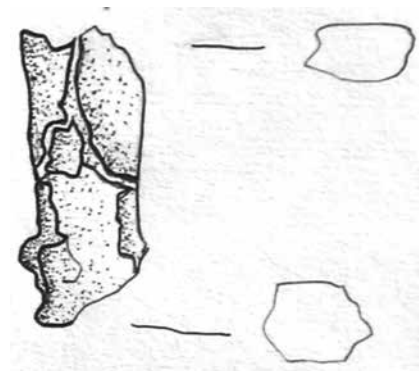
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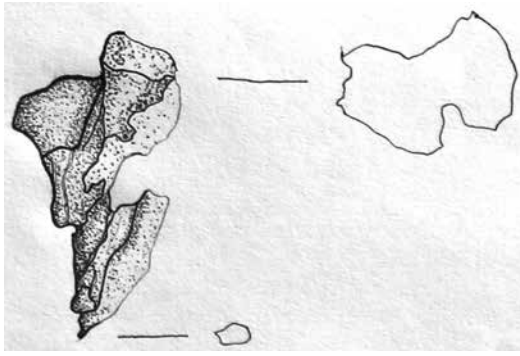
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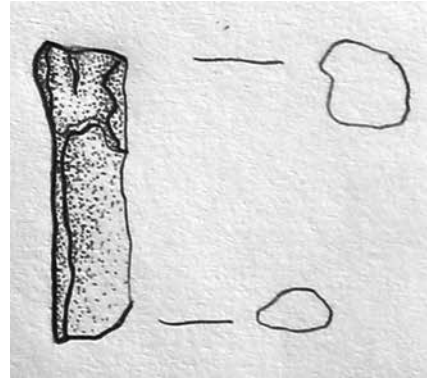
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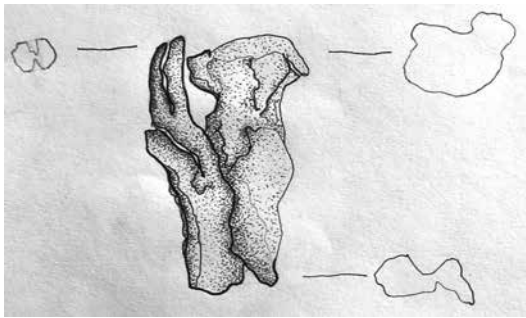
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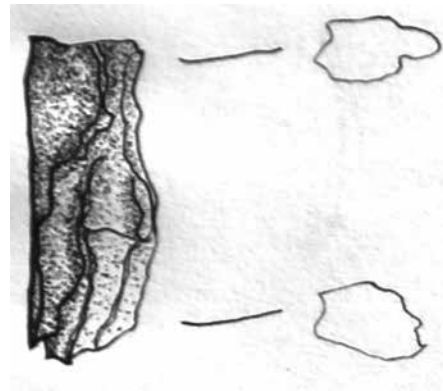
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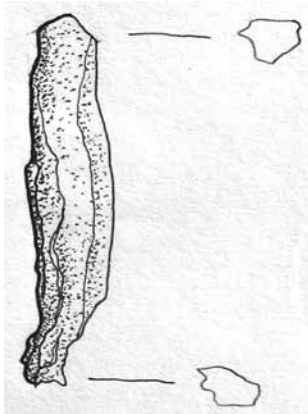
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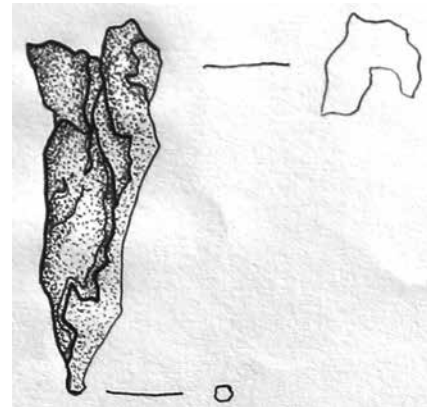
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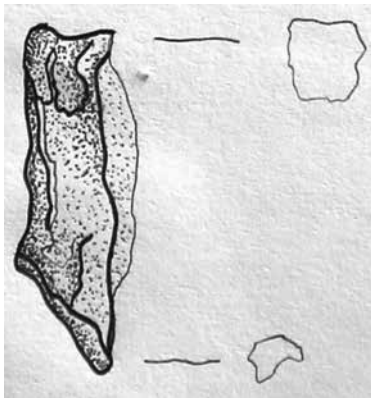
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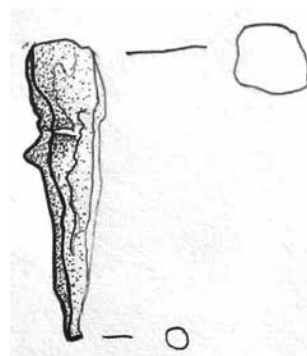
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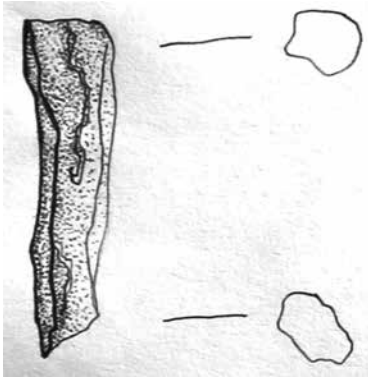
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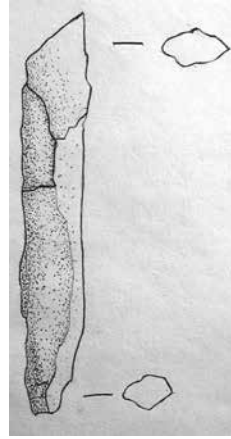
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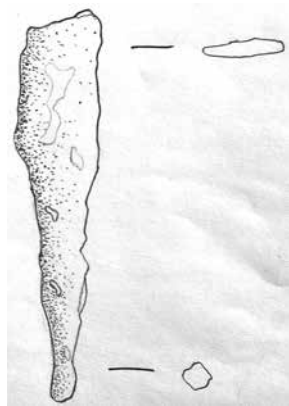
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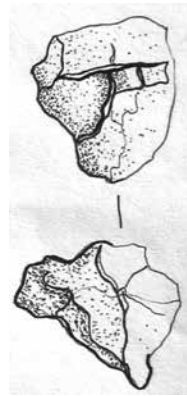
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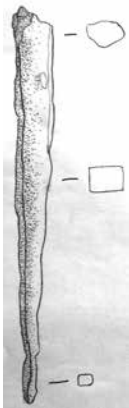
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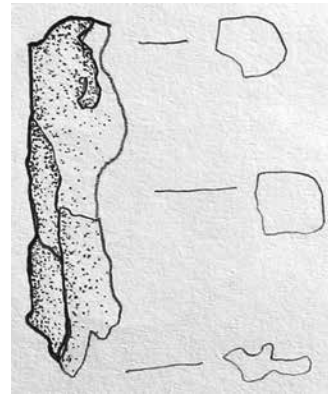
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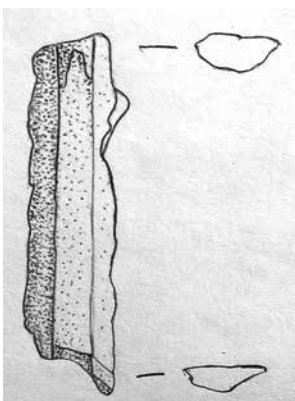
26.327



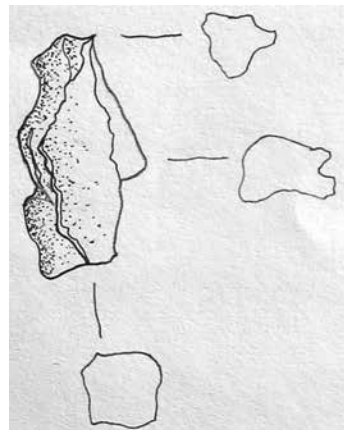
26.324



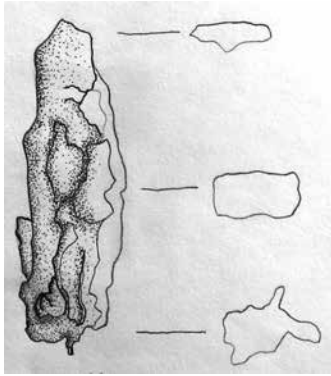
26.328



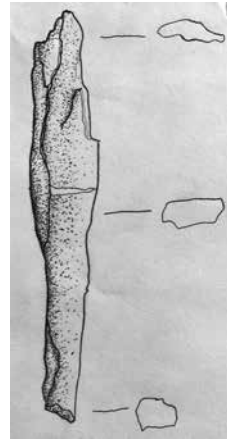
26.325



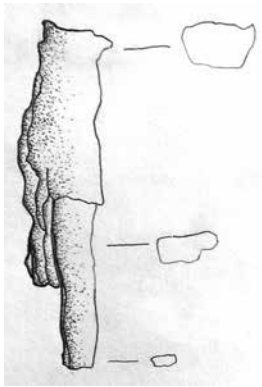
26.329



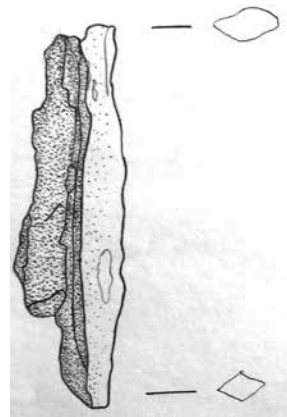
26.330



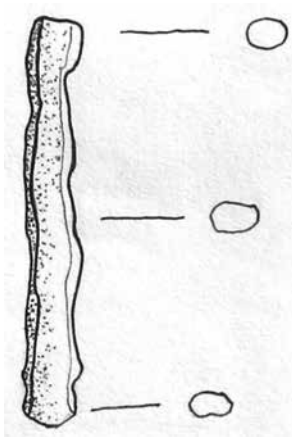
26.334



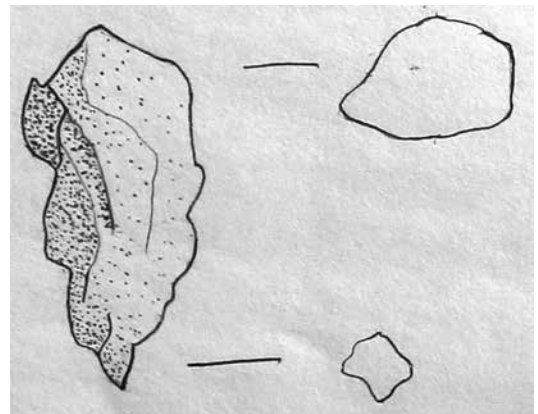
26.331



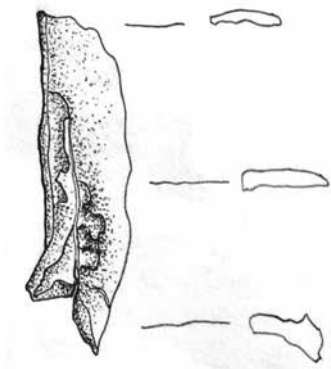
26.335



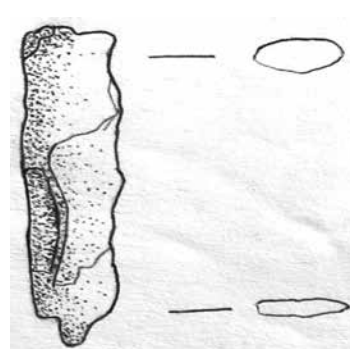
26.332



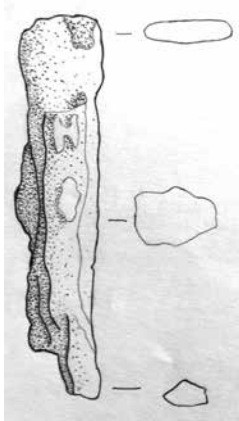
26.336



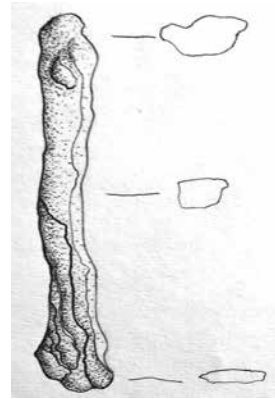
26.333



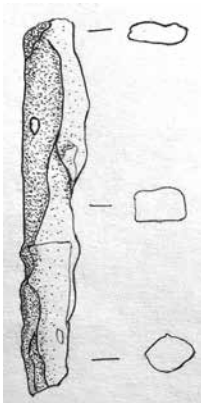
26.337



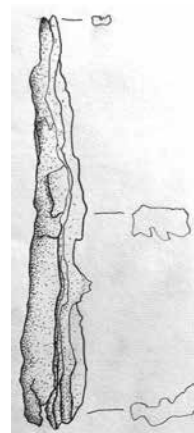
26.338



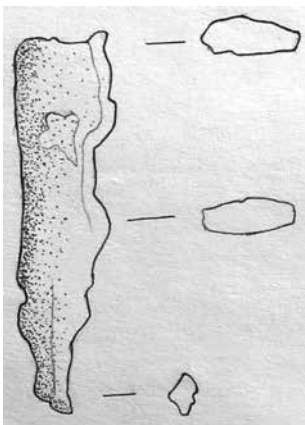
26.341



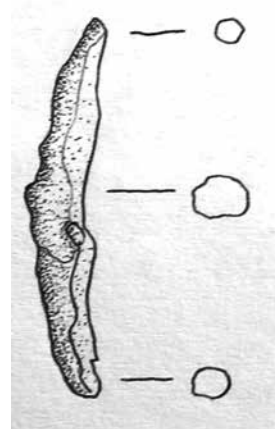
26.339



26.342



26.340



26.343

Figures 26.195-343. Diagnostic body fragments of iron nails (by E. Lafi, 2008).

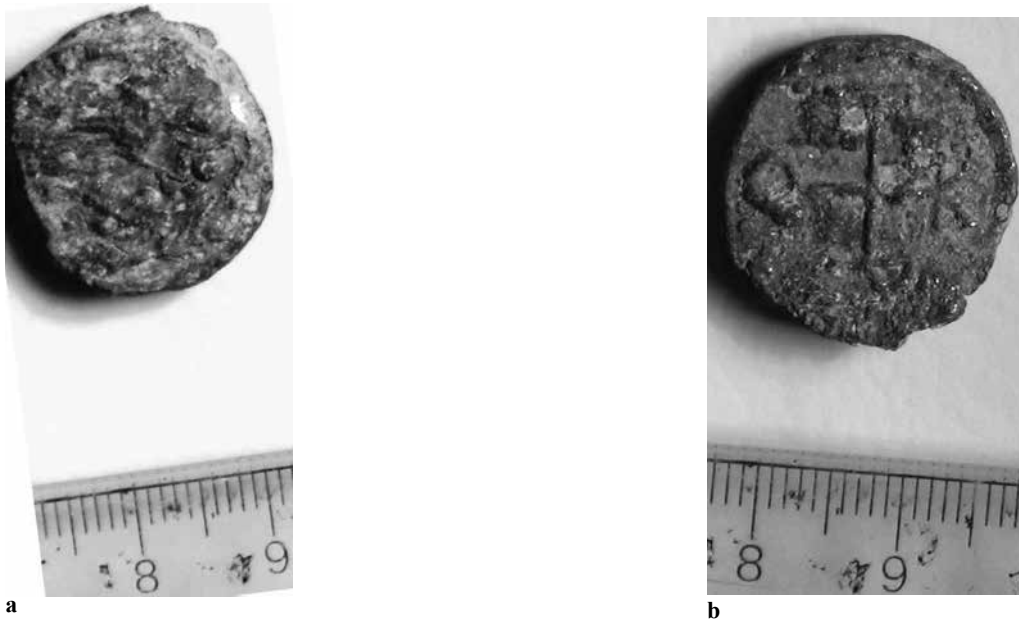


Figure 26.344a-b. A lead seal from the seventh century AD (by E. Lafli, 2008).

lead?) nails as well. For the archaeometric investigation of these nails as regards production *cf.* appendix 3 below.

The dates of these iron nails from Hadrianopolis range mainly between the beginning of the sixth century to the late seventh century AD. The huge amount of finds in Hadrianopolis indicates local production of iron nails somewhere in southwestern Paphlagonia between the sixth and seventh centuries AD. Smelting waste has also been found during the excavations in Hadrianopolis.

Appendix. Two Byzantine lead seals

1. A seventh century AD seal figs. 26.344a-b

Acc. no. HP07/05, Museum of Amasra.

Baths A, Room 10B. It was found on the floor where the northeast wall meets the mosaic, in the soil fill during the cleaning on August 25, 2007.

Diam. 2.3 cm; th. 0.5 cm.

It is poorly preserved and needs conservation.

Obverse. On the edge there is a laurel wreath. It can be assumed with high probability that a standing Theotokos of the Hodēgētria ('she who points the way') type with a halo is depicted on the obverse, *i.e.* an iconographical depiction of the Virgin and Child, showing a standing Virgin holding the Child on her left arm. There is usually a cross on both sides of such a representation during this period, but the traces on the far right do not correspond very well. They would rather make to think a Chi at there.

Reverse. A cross-shaped monogram containing five letters: an E appears on the left, a P on the right, an O below and T and V above. Thus, we have the letters E, O, P, T, V which results alone in the genitive forms Eretiou or Eortiou (maybe even Otreiou). This is a very rare combination, but at least is attested by Giovanni Domenico Mansi.⁷ C can also be read in the E, and this combination of letters could

offer Orestou (genitive of Orestes) on the one hand, and Restitoutou to Latin *restitutus* on the other. Both options are well documented: in Dumbarton Oaks there is a similar monogram which, however, bears a C and where the P appears below the T. Also this seal in Dumbarton Oaks has a bust of Theotokos between crosses on the obverse.

A very thick wall.

Dating. Because of the image on the obv. it must be dated to the seventh century AD.

References. Lafli and Zäh 2009, p. 644, pl. 7, figs. 5a-b; Lafli and Christof 2012, p. 109, figs. 97a-b; and Kara *et al.* 2013, p. 177.

2. The second seal with a block monogram fig. 26.345

Acc. no. HDRN.08–10, Museum of Amasra.

It was found in the excavated soil of the Baths A without any context on September 10, 2008.

Diam. 1.9–2.3 cm; th. 0.4 cm.

Reverse. Block monogram around Pi: possibly an Omicron, possibly an Omega, an Ypsilon, a Rho, a Gamma or a Sigma.

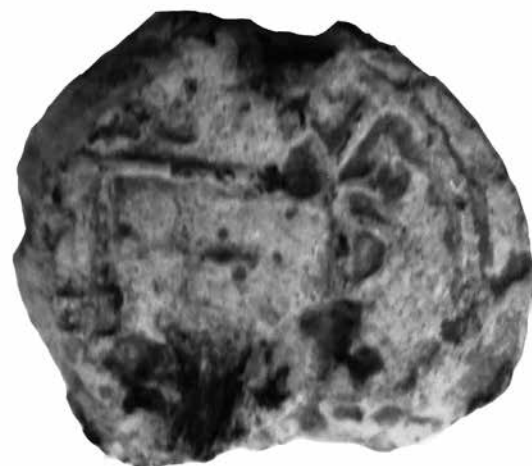


Figure 26.345: The second lead seal with a block monogram (by E. Lafli, 2008).

⁷ Mansi 1758–1798.

References. Lafli and Christof 2012, p. 109, fig. 98; Kara *et al.* 2013, p. 177; and Lafli and Gürler 2015, p. 68, fig. 30a.

Notes

All the photos were taken by the author between 2005 and 2009 and all the drawings were made by him as well in 2008.

Inscribed Finger Rings from Late Antique and Byzantine Asia Minor

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Abstract: In this short paper we present thirteen metal rings from the Museums of Izmir (nos. 3–4 and 9–10), Afyonkarahisar (no. 5), Bergama (nos. 6 and 8), Ödemiş (no. 7), Trabzon (no. 11), and Balıkesir (no. 13), dating mainly from the Late Antique and Middle Byzantine periods. Two of these rings (nos. 2 and 12) belong to the private collection of Mr Koray Selçik and one (no. 1) belongs to the private collection of Ms Berna Oğuz, both of whom reside in Kemalpaşa near Izmir. Only no. 3 was previously published. Most of these rings bear Christian inscriptions and belong to the Late Antique period; nos. 12 and 13 seem to date from the Middle Byzantine age. Nos. 3, 6, and 7 contain an appeal to God for salvation or cure. No. 9 is particularly interesting because it expresses the owner's devotion to Longinos, a popular Late Antique and Byzantine saint. Other rings, nos. 2, 4 (with a monogram), 5, and 8 (with a monogram), bear personal names of their owners. No. 1 may be a gift to a girl, called 'beautiful'.

Keywords: Finger rings, inscribed gemstones, inscribed bezels, invocations of God, personal names, sigillography, Late Antiquity, Early Byzantine period, Middle Byzantine period, Izmir, Asia Minor, Turkey.

Özet – Anadolu'dan Bizans Dönemi'ne Ait Bazı Yazıtlı Yüzükler: Bu makalede konu edilen yüzükler Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü'nün yazılı izni ile çalışılmıştır.

Bu kısa makalede İzmir (no. 3–4 ve 9–10), Afyonkarahisar (no. 5), Bergama (no. 6 ve 8), Ödemiş (no. 7), Trabzon (no. 11) ve Balıkesir (no. 13) Müzeleri'nden Bizans Dönemi'ne ait toplam 13 adet metal yüzük tanıtılacaktır. Sayılan örneklerin dışında ikisi (no. 2 ve 12) İzmir yakınlarındaki Kemalpaşa'da bulunan Koray Selçik'in özel koleksiyonuna ve biri de (no. 1) Berna Oğuz'un özel koleksiyonuna ait üç örnek daha bulunur. Bu örneklerden sadece 3 numaralı örnek daha önce yayımlanmıştır; diğer örnekler şu an itibarıyla yayımlanmamıştır. Bu yüzüklerin çoğu Erken Bizans Dönemi'ne aittir; 12 ve 13 numaralı örnekler ise Orta Bizans Çağı'na tarihlenirler. 3, 6 ve 7 numaralı örneklerin yazıtları Tanrı'ya yalvarış ya da tedavi için yardım isteği metinleri içerirler. 9 no'lu örnek çok ilginçtir; çünkü bu yüzük yazıtında belki de Erken Bizans Dönemi'nde oldukça popüler olan bir azizden bahsedilmektedir. 2, 4 (monogramlı örnek) ve 5 ile 8 (monogramlı örnek) numaralı diğer yüzük örnekleri ise sahiplerinin adlarını taşımaktadırlar. 1 numaralı yüzük 'güzel' olarak nitelendirilen bir kıza özel bir hediyedir.

Anahtar Kelimeler: Yüzükler, yazıtlı yarı değerli taşlar, yazıtlı yüzük kaşları, Tanrı'ya yalvarma metinleri, kişisel isimler, Erken Bizans Dönemi, Orta Bizans Dönemi, İzmir, Anadolu, Türkiye.

This paper will present several unpublished Late Antique and Middle Byzantine inscribed metal finger rings from Asia Minor, a group that has not been particularly well documented in Turkey,¹ with the exception of over one hundred rings with stones or inscriptions in the volume on the Byzantine objects of Ephesus.² Approximately sixty

rings from Sardis have also previously been published.³ The types of finger rings from the Roman period⁴ include examples with inscriptions in the nominative case or plain monograms for sealing like a signet, marriage and betrothal rings, devotional and religious rings, and decorative rings. Already by the mid-third century AD, after the fall of the Severan dynasty, a significant change in the fashion of

¹ For the Greco-Roman finger rings and engraved gems in Asia Minor see Konuk and Arslan 2000.

² Pülz 2020, pp. 74–191,

³ Waldbau 1983, pp. 813–70.

⁴ For the typology of rings dating from the Imperial period, see the useful surveys in: Marshall 1907.

finger rings is apparent. Gemstones were rarely engraved, and rings were set instead with old gems, unengraved gems, or coins. In the Constantinian period rings became larger, with tubular hoops or hoops decorated with floral patterns (usually an acanthus wreath).⁵

A typical Byzantine inscribed metal finger ring has a separately worked flat bezel (round, square, cruciform, or floral-shaped) engraved with a monogram, religious invocation, or iconographic device (such as Christ, the Virgin Mary, a saint or an eagle with wings spread). These rings with short epigrams, monograms or simple inscriptions with expressions, mostly in abbreviated forms such as ὁμόνοια ('concord') and χάρις ('grace') are very common objects throughout the whole of Asia Minor, as they were a common grave good. During the Byzantine period gold finger rings like these were usually worn by aristocratic men and women; but bronze rings were worn by almost everybody. Although Byzantine rings based their forms typologically on Roman rings, Byzantine rings were less elaborate, notably those with tall, conical, or calyx-shaped bezels ringed with gemstones, sometimes embossed or executed in openwork. They may well derive from the same ateliers that produced other types of jewellery, such as earrings, necklaces, small crosses, and various forms of pendants.⁶

Although numerous finger rings dating from the late fifth and early sixth century AD survive in Asia Minor, this group is poorly attested and difficult to classify. Most of the shapes that emerged in the sixth century AD are distinctive and found in relatively large numbers, but there are some unusual types as well. The cruciform monogram first appeared in Byzantium in the 520s⁷ and became increasingly popular. Rings with Greek monograms in block type were widely used, and the style continued well into the sixth century, eventually to be replaced by cruciform monograms around AD 550.⁸ The rings from the Late Byzantine period (*i.e.* AD 1204–1453) are remarkable not only for their fine design but also for the variety of inscriptions they bear, including personal names and monograms, official titles, and epigrams composed by Byzantine poets. A possible Byzantine workshop for finger rings in Constantinople and a further one in the Black Sea area (Trapezus?) has already been suggested by Jeffrey Spier.⁹

So far very few comprehensive studies on Byzantine inscribed finger rings have been produced. In fact, numerous rings are published in studies related to occasional finds or excavations,¹⁰ but only rarely are they part of a specialised catalogue of a museum collection or

private collections.¹¹ Often the parts related to the rings are included in the broader category of Byzantine jewellery. Isabella Baldini Lippolis has distinguished five types of rings of the Late Antique period with particular reference to southern Italy and Sicily.¹² Major progress was made by Antje Bosselmann-Ruckbie's study of the Middle Byzantine jewellery which also included finger rings of various metals.¹³ Furthermore, Andreas Rhoby gathered numerous epigrams from Byzantine small objects, but finger rings were not covered by this research except one example.¹⁴

In this short paper thirteen metal rings from the Museums of Izmir (nos. 3–4, 9, and 10), Afyonkarahisar (no. 5), Bergama (nos. 6 and 8), Ödemiş (no. 7), Trabzon (no. 11), and Balıkesir (no. 13) will be presented, dating from the Late Antique and Byzantine periods (**fig. 27.1**). Two of these rings (nos. 2 and 12) belong to the private collection of Mr Koray Selçik and one of them (no. 1) belongs to the private collection of Ms Berna Oğuz, both of whom reside in Kemalpaşa near Izmir. The collections are registered at the Archaeological Museum of Izmir. Only no. 3 was previously published. Most of these rings belong to the Early Byzantine (Late Antique) period; nos. 12 and 13 seem to date from the Middle Byzantine period. They are difficult to categorise as little information is available.

Catalogue

No. 1: A gold ring beaded with a gemstone with a two-lined inscription (**figs. 27.2a-b**).

Repository and provenance: The Berna Oğuz Collection, Izmir, acc. no. 57. Acquired in 2014; originated from western Asia Minor (possibly from Magnesia on the Maeander).

Measurements: Inner diam. 18 mm, h. 15 mm, total wg. 2.04 g.

Typological description and state of preservation: A gold twisted wire ring, with a brownish-red semi-precious gemstone, most probably a carnelian, and an engraved two-line inscription. The shape is well-known during the Roman period and corresponds to the Guiraud 4c type.¹⁵ Each endcap is decorated with two gold beads. Well preserved.

Transcription:

Κύνα
2 καλή

Translation: *To Kyna, the beautiful (girl).*

Comments: Line 1 contains the name of the owner or the recipient of the ring, followed by the epithet καλή, 'beautiful'. The name can be given either in the nominative or the dative form. Therefore, the inscription reads either

⁵ Spier 2012, p. 13. *Cf.* also Spier 2010 and 2014.

⁶ Spier 2012, pp. 16, and 19, N. 34.

⁷ Spier 2012, pp. 16, and 19, N. 31: The earliest datable cruciform monograms are those of the Emperor Justin I (AD 518–527), which appear on small bronze coins struck at Antioch; see Phillips, Tyler and Smith 1998, pp. 318 and 322.

⁸ Spier 2012, pp. 15, and 18, N. 24.

⁹ Spier 2012, p. 13.

¹⁰ *E.g.* Waldbaum 1983.

¹¹ *E.g.* Spier 2012. Recently for Bulgaria *cf.* Doncheva and Bunzelov 2017. *Cf.* also Opreanu 2009.

¹² Baldini Lippolis 1999, pp. 187–215.

¹³ Bosselmann-Ruickbie 2011, pp. 117–29.

¹⁴ Rhoby 2010.

¹⁵ Guiraud 1989, p. 179. For Κύνος from Cyzicus in Mysia, western Anatolia, dating from AD 205, see *LGP* VA, s.v.



Figure 27.1. Places in Asia Minor and elsewhere referred to in the text (by S. Pataci, 2019).



Figures 27.2a-b. A gold ring beaded with a gemstone with a two-lined inscription. The Berna Oğuz Collection, Izmir, acc. no. 57 (by E. Lafli, 2015).

‘Kyna, the beautiful (girl)’ or ‘To Kyna, the beautiful (girl).’

It was previously believed that *καλή* was an epithet of prostitutes, especially in the Classical and Hellenistic periods, but this is now less certain.¹⁶ The expression *καλός/καλή* also recalls inscriptions from Attic symposiastic vases from the fifth century BC. and later.¹⁷ On our ring the epithet obviously refers to the girl whose name appears in line 1.

Comparanda: A carnelian from a ring with an identical inscription (KYNA | KAAH) was found at Pantikapaion (Cimmerian Bosphoros), and published in 1909.¹⁸ Two

earrings in the Museum of Fine Arts in Boston, acc. no. 66.318 a-b, each with one square stone inscribed with TH KAAH, are dated to the fourth century AD.¹⁹ Here the article τῆ supports the supposition that our inscription is in the dative case.

Dating: Middle or Late Roman.

No. 2: A silver ring beaded with an octagonal gemstone with a two-line inscription (figs. 27.3a-b).

Repository and provenance: The Koray Selçik Collection, Izmir, transferred from the Berna Oğuz Collection, Izmir, former acc. no. 236. Acquired in 2015.

Measurements: Inner diam. 16 mm, h. 17 mm, total wg. 2.58 g.

Typological description and state of preservation: A silver ring, with a light brownish-red semi-precious octagonal gemstone, most probably a carnelian, bearing an engraved two-line inscription. Well preserved.

Transcription:

Ἰη-
2 σοῦ

Translation: *O Jesus (help)!*

Date: fifth/seventh century AD.

Comments: The case is vocative; therefore, this is an invocation to Jesus, and the ring must have been owned by a Christian.

¹⁶ See Kapparis 2017, p. 386.

¹⁷ See Talcott 1936, part. 333–334.

¹⁸ See *LGN IV*, s.v. *Kōva* referring to *AA* 1909, p. 155: KYNA | KAAH. For the name Kyna documented by an inscription, see also Mihailov

1975, p. 32: *Κυνα* (Amphipolis in Macedonia).

¹⁹ <<https://www.mfa.org/collections/object/earring-with-inscribed-gemstone-3>>.

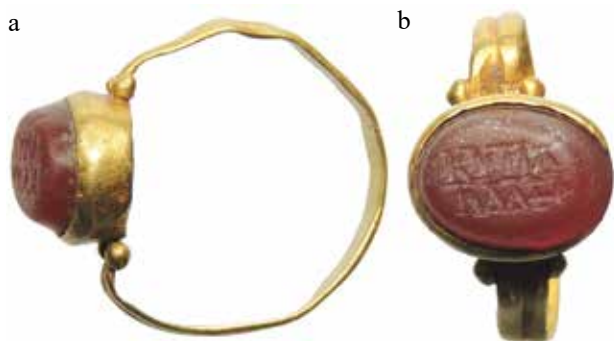


Figure 27.3a-b. A silver ring beaded with an octagonal gemstone with a two-lined inscription. The Koray Selçik Collection, Izmir (by E. Laflı, 2016).



Figure 27.4. A carnelian intaglio with a four-lined inscription. Archaeological Museum of Izmir, acc. no. 013.529 (by E. Laflı, 2010).

On the possible production of octagonal gems in Roman Asia Minor, see Goldman 2014.

No. 3: A carnelian *intaglio* with a four-line inscription (fig. 27.4).

Repository and provenance: Archaeological Museum of Izmir, acc. no. 013.529.

Measurements: H.: 10 mm, w. 8 mm, th.: 2 mm, wg.: 3 g.
Typological description and state of preservation: An oval, brownish-red carnelian *intaglio* with engraved four-line inscription, which is framed by a thick circle. Well preserved.

Transcription:

Κ(ύρι)ε β-
2 οήθ(ε)ι Γε-
οργίου
4 +

Translation: *O Lord, help Georgios!*

Comments: ‘Lord’ can be both God the Father and Christ. The invocation Κύριε βοήθει is omnipresent in inscriptions of all kinds from the fourth and fifth century AD onwards. For this type of invocation see, for example: Di Segni 2017, pp. 63–68; Yasin 2015, pp. 36–60; Eck 1995, pp. 206–22. Similar formulas also appear on Jewish and magical and/or syncretistic gems [e.g. ΟΥΡΙΑΛ ΣΑΒΑΩ ΒΟΗΘΙ, ‘Ouriel sabao[th] help’, accompanied by a Jewish divine name and a request: Spier 2007, p. 112, no. 652 = Mazor 2015, p. 129; two amulets, one from the Louvre, the other from The Newell Collection: Spier 2007, p. 112, cat. nos. 654 and 652 = Mazor 2015, p. 130 with the inscriptions ΣΑΒΑΩ ΒΟΗΘΙ ‘Sabao[th] help’ and ΟΥΡΙΑΛ ΣΑΒΑΩ ΒΟΗΘΙ, ‘Ouriel Sabao[th] help’, as well as on further examples, e.g. Baldini Lippolis 1999, p. 199, no. 12; p. 200, no. 16; p. 207, no. 3; p. 208, nos. 4 and 5; p. 212, no. 2].

Dating: fourth/sixth century AD.

Reference works: Bru and Laflı 2011, p. 196, no. 3; and Laflı 2012, p. 147, no. 64, p. 142, fig. 64.

No. 4: A silver ring with a monogram (figs. 5a-b).

Repository and provenance: Archaeological Museum of Izmir, in the depot of courtial antiquities, acc. no. 2016.861.1. Given to the Museum by the Second Civil

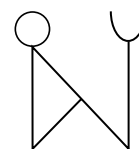


Figs. 27.5a-b. A silver ring with a monogram. Archaeological Museum of Izmir, acc. no. 2016.861.1 (by E. Laflı, 2016).

Court of First Instance in Izmir in 2016, formerly belonged to a private collection in the surrounding of Izmir.

Measurements: Inner diam. 19 mm, h. 27 mm, wg. 1.95 g.
Typological description and state of preservation: A very plain ring with a monogram engraved on its bezel. Black patina; otherwise well preserved.

Transcription:



Ἰωάννου

Translation: *Of Ioannes.*

Dating: Monograms denoting personal names were used periodically in Greek and Roman times. Only for a brief time in the early third century AD engraved gems were decorated with monograms of individuals. Monograms reappear again in the fifth century AD, when personal monograms on gems and rings again became very popular.²⁰ Therefore, our ring probably dates from the fifth/eighth century AD.

²⁰ Spier 2012, p. 4.



Figure 27.6. A silver ring beaded with an octagonal gemstone with a two-line inscription. Museum of Afyonkarahisar (by E. Lafli, 2016).

No. 5: A silver ring beaded with an octagonal gemstone with a two-line inscription (fig. 27.6).

Repository and provenance: Museum of Afyonkarahisar, in a display case in the hall of small finds. Originally from Phrygia.

Measurements: Inner diam. 18 mm, h. 29 mm, wg 6.83 g.
 Typological description and state of preservation: A silver ring, with a dark brownish-red semi-precious octagonal gemstone, most probably a carnelian, bearing an engraved two-line inscription. Blackened surface.

Transcription:

2 Ἀνα-
ξίου

Translation: *Of Anaxios.*

Comments: The inscription records the name of the owner, probably Ἀνάξιος (see the Trismegistos database record TM35570). A much more popular form of this name was Ἀναξίων. The *Lexicon of Greek Personal Names* records five instances of the occurrence of the name Ἀναξίων in the Aegean Islands (LGPN I, s.v.), two instances on the north coast of the Black Sea, in Macedonia and Thrace (LGPN IV, s.v.), and six instances in southern Anatolia (LGPN VB, s.v.).

No. 6: A bronze ring with a three-line inscription (figs. 27.7a-b).

Repository and provenance: Museum of Bergama, exhibited in a display case of the small finds from the local excavations. It was found in Paşa Ilıcasi-Yortanlı, ancient Allianoi in Mysia, between 1994 and 2006, during which time a Greco-Roman thermal complex was excavated. In the 1994–1996 seasons, a Byzantine settlement and its *necropolis* dating to the 11th century AD, were excavated; this ring was probably found there.

Measurements: Inner diam. 20 mm, h. 32 mm, wg. 3.47 g.



Figure 27.7a-b. A bronze ring with a three-line inscription. Museum of Bergama (by E. Lafli, 2016).

Typological description and state of preservation: A simple wire ring with a large, oval, flat bezel on which is a deeply engraved inscription. Green patina.

Transcription:

2 + Μαρ-
τίρω-
ν // ΚΘ

3. possibly κθ' = 29, or Κ(ύριος ὁ) θεός, or Νήκα = Νίκα.
 Translation: *(Blessing) of the martyrs (- - -).*

Comments: The inscription probably invokes the blessing of martyrs (cf. no. 9 below with a similar formula referring to St Longinos). If we consider the signs which follow the word μαρτύρων as a number, 29 (κθ'), then we can have here a reference to the martyrs of Cyzicus. They are normally called the Nine Martyrs of Cyzicus (BHG), but in some *menologia* they appear as the Twenty-Nine Martyrs of Cyzicus. This is probably a confusion of their original number with the date of their feast (29 April).²¹ Alternatively, ΚΘ may be an abbreviated formula, for example, Κ(ύριος ὁ) θεός, 'God is the Lord!' sometimes also translated as 'the Lord is (our) God!', which is a common biblical acclamation, particularly popular in the Book of Revelation [Mark 12:29; Luke 1:32, 1:68; Acts 2:39, 3:22; Revelation 1:8, 4:8; 19:6; 21:22, 22:5–6, see also Felle 2006 for the use of this phrase in inscriptions]. We have no clear photograph, but other readings, e.g. κβ, i.e. Κ(ύριε), β(οήθει), see no. 3 above, or a damaged cross, are rather implausible. Another possible reading of the entire text as 'μαρτυρῶ Νήκα', 'I give witness to Nikas', is

²¹ See Anderson 1992, p. 54.



Figure 27.8a-b: A bronze ring with a three-line inscription. Museum of Ödemiş, acc. no. 2017.317 (by E. Lafli, 2016).

rather implausible either, as the inscription is not in mirror letters, and the ring was apparently not used as a seal. Dating: fifth/eighth century AD.

No. 7: A bronze ring with a three-line inscription (figs. 27.8a-b).

Repository and provenance: Museum of Ödemiş, acc. no. 2017.317. Given to the museum by the Second Civil Court of First Instance in Ödemiş in 2017; formerly in a private collection in the surrounding of Kiraz, Greco-Roman Κολόη or Byzantine Καλόη in the upper Cayster valley, ca. 150 km east of Izmir.²²

Measurements: Inner diam. 21 mm, preserved h. 15 mm, th.: 3 mm, l. of bezel: 11 mm, wg.: 2.17 g.

Typological description and state of preservation: The oval bezel presents an engraved, transversal inscription which is barely legible. Bottom of the ring is missing. Yellow patina.

Transcription:

Κ(ύριε), β(οήθει)
 2 Χ(ρίστε),
 β(οήθει) Ιωάν(νου)

Translation: *Lord help, Christ help Ioannes!*

Dating: fifth/eighth century AD.

No. 8: A bronze ring with cruciform monogram (figs. 27.9a-c).

Repository and provenance: Museum of Bergama, exhibited in a display case of Greek, Roman and Byzantine jewellery from Bergama.

Measurements: Inner diam. 28 mm, h. 34 mm, wg. 4.47 g.

Typological description and state of preservation: The ring's shape, with two bulges on the two sides of the bezel, recalls examples of the Late Antique period onwards,



Figure 27.9a-c: A bronze ring with cruciform monogram. Museum of Bergama (by E. Lafli, 2016).

decorated with dolphins.²³ Black patina; otherwise well preserved.

Inscription: On the round bezel a cruciform monogram with some letters E-H and another which is illegible. It could also be a decorative or magical cross. The cross is not regular.

Dating: sixth/seventh century AD.

No. 9: A copper alloy ring with a four-line inscription (figs. 27.10a-b).

Repository and provenance: Archaeological Museum of Izmir, in the depot of confiscated antiquities, acc. no. 2016.861.2. Given to the museum by the Second Civil Court of First Instance in Izmir in 2016, formerly belonged to a private collection in the surrounding of Izmir.

Measurements: Inner diam. 22 mm, h. 32 mm, th.: 5 mm, l. of bezel 16 mm, wg. 3.23 g.

Typological description and state of preservation: A thick wire ring with a round, flat bezel in the form of an inverted pyramid, with deep letters originally inlaid using the 'niello' technique. Well preserved.

Transcription:

Τοῦ
 2 ἁγίου
 Λο(γ)γίν-
 4 ου

Translation: *(Blessing) of St Longinos.*

²² Lane 1975, p. 106, N. 6.

²³ Spier 2012, p. 182.



Figure 27.10a-b. A copper alloy ring with a four-line inscription. Archaeological Museum of Izmir, acc. no. 2016.861.2 (by E. Laflı, 2016).

Comments: According to Early Christian tradition, St Longinos was a Roman soldier present at the Crucifixion of Jesus, who pierced Christ's side with his lance (John 19:34). Christian hagiography holds him as a later convert to Christianity. His name, which itself does not appear in the Gospels, was probably chosen for him by Christian hagiographers because of its similarity to the Greek word λόγχη, 'spear' or 'lance'. It is sometimes said that the saint appears under this name for the first time in an illuminated manuscript from the so-called Rabbula Gospels, now in the Laurentian Library, Florence, dated AD 586. As a matter of fact, the cult of this saint is, however, also attested by inscriptions, one of them slightly earlier than the manuscript. A lintel from Al-Burj near Amathe/Ḥamāh and Chalkis in northern Syria bears the following text:²⁴ μητᾶτον τοῦ ἀρχαγγελό[σ] Μιχαήλ καὶ τοῦ ἁγίου | Λονγίνου τοῦ ἑκατοντάρχου· ἐκτίσθη ὁ πύργος οὗτος, ἔτους ζ'ω', μ(η)νός Παν(ή)μου), 'Military transit camp (*metaton*) of the Archangel Michael and of St Longinos the Centurion. This tower (*pyrgos*) was built in the year 837, in the month of Panemos.' Thus, the date, given according to the Seleucid era, corresponds to July 526 AD. A labelled image of Longinos also appears on a capital from 'Aila near modern 'Aqaba on the northern coast of the Gulf of 'Aqaba, stylistically dated to the sixth or seventh century AD. His commemorations at and in the environs of Jerusalem are well documented by Georgian sources.²⁵ The saint's links to Asia Minor are also relevant to our study. In the *Martyrologium Hieronymianum* a feast of St Longinos is mentioned on 15 March. The entry

reads 'In Cappadocia sancti Longini' or 'Cappadociae sancti Longini' in different manuscripts. The manuscripts BnF 10837 and Bern 289 also mention his feast on 23 October: 'In Caesarea Cappadociae Longini.' Both feasts are believed to have been celebrated in Caesarea in Cappadocia.²⁶

Comparanda: Waldbaum (1983), 130, no. 834. The shape with the inverted pyramid appears in several rings of a type that Spier dates back to the sixth century AD.²⁷

Dating: seventh/11th century AD.

Appendix I: An opal *intaglio* with a two-line inscription

No. 10: An opal *intaglio* with a two-line inscription (fig. 27.11).

Provenance: Archaeological Museum of Izmir. acc. no. 017.312.

Measurements: L.: 18 mm, w.: 15 mm, th.: 9 mm, Wg.: 3 g.

Typological description and state of preservation: An oval, pierced, white opal was used as an *intaglio* of a stamp to which a bronze griff was attached. Well preserved. Spier (1992), form IX.

Transcription:

AWNK
2 EETZ

Translation: The two lines have a different orientation and each one can be read by turning the stone. Line 1 reads AWNK, AMNK or ANNK. Line 2 reads EETZ. A tentative possibility is ἀμ(ή)ν, Κ(ύρι)ε ETZ – but this is extremely doubtful. If the correct reading is ANNK, the first letters ANN may perhaps refer to a Greek name, Anna, Annia or similar. We may also have here some magical *voces*.

²⁴ IGLSIV 1610, see also the *Cult of Saints in Late Antiquity* database record E01834 = <<http://csla.history.ox.ac.uk/record.php?recid=E01834>>.

²⁵ The Georgian version of the Lectionary of Jerusalem from the seventh century AD records the commemoration of the deposition of relics of Longinos in the village of Bethany on 17 July, and the Church Calendar of Ioane Zosime, a tenth century AD work preserving fifth/seventh century AD traditions, mentions a commemoration of Longinos on 11 February, 17 July, and probably 15 October. See the *Cult of Saints in Late Antiquity* database records E03641; E03803; E03896.

²⁶ For the cult of Longinos, see also Ossola 2008.

²⁷ E.g. Spier 2012, p. 80, no. 11, fig. 11, no. 1.



Figure 27.11. An opal intaglio with a two-lined inscription. Archaeological Museum of Izmir, acc. no. 017.312 (by E. Laflı, 2010).

Comparandum: Rings with reversible bezel, are known in the Byzantine and other periods, such as a ring in the Benaki Museum, Athens.²⁸

Dating: Such pivoting gems were typical of the Archaic period, whereas the writing form is that of the Roman period.

Appendix II: Three Byzantine digital rings with engraved geometric decoration

No. 11: A bronze ring with engraved geometric decoration (fig. 27.12).

Repository and provenance: Museum of Trabzon, in a display case in the hall of small finds. Found in northeastern Turkey.

Measurements: Inner diam. 28 mm, preserved h. 31 mm, wg. 5.13 g.

Typological description and state of preservation: A wire ring with a circular, flat bezel with a wolf-shaped frame. Yellow patina. Otherwise well preserved. Engraved signs on the bezel.

Comparandum: For another gold ring with a similar frame, dated to the fifth century AD *cf.* Spier 2012, cat. no. 14e.

Dating: fifth/sixth century AD.

No. 12: A bronze ring with engraved geometric decoration (figs. 27.13a-b).

Repository and provenance: The Koray Selçik Collection, Izmir, transferred from the Berna Oğuz Collection, Izmir, former acc. no. 243. Acquired in 2015.

Measurements: Inner diam.: 17 mm, h.: 27 mm, th.: 3 mm, l. of bezel 17 mm, wg.: 2.57 g.

Typological description and state of preservation: The shape corresponds with Spier 2012, cat. no. 10, which



Figure 27.12. A bronze ring with some engraved geometric decoration. Museum of Trabzon (by E. Laflı, 2016).



Figure 27.13a-b. A bronze ring with some engraved geometric decoration. The Koray Selçik Collection, Izmir (by E. Laflı, 2016).

dates to the beginning of the sixth century AD. Engraved signs on the bezel. Well preserved.

The ring corresponds to the Pülz 1.8 Ephesus type which dates to the 13th century (2020, 85, nos. 133–134).

Comparanda: Bosselmann-Ruickbie 2011, p. 283, no. 128. In the antique market there are numerous silver rings with such engraved signs. As far as we know today, there is no study of this interesting decoration type. Its surface reveals many signs of use, or is perhaps linked to an imperfect finishing touch on the ring. Noteworthy are also the transversal lines on the surface that recall similar signs on *fibulae* of the sixth/seventh century AD.

Dating: 11th/12th century AD.

No. 13: A bronze ring with engraved geometric decoration (fig. 27.14).

Repository and provenance: Museum of Kuva-yi Milliye (Turkish national forces) in Balıkesir, in a display case in

²⁸ Baldini Lippolis 1999, p. 202, no. 39.



Figure 27.14. A bronze ring with some engraved geometric decoration. Museum of Kuvâ-yi Milliye in Balıkesir (by E. Lafli, 2016).

the hall of small finds from the local excavations. It was excavated from a Roman bath in Güre, ancient Astyra²⁹ in Mysia in 2006–2007. The thermal spring water on the site was also exploited in the Late Roman and Byzantine times. According to the excavators a small chapel was built over the ruins of the bath perhaps in the 11th or 12th century AD; in and around it are simple inhumations and burials in tile tombs. Perhaps this ring was found in one of these tombs. Byzantine coin finds of this excavated site go up to AD 1254.³⁰

Measurements: Inner diam.: 24 mm, h.: 41 mm, th.: 4 mm, l. of bezel 37 mm, wg.: 8.46 g.

Typological description and state of preservation: Its large, octagonal, flat bezel is divided into a central rectangular field between two engraved oblique lines. At the centre of its field a series of oblique lines exist above other horizontal lines (in form of a pseudo-inscription?). On the right square field there could be a possible monogram (?) in which letters like AV or VA seem to exist, but which could simply be a decorative motif, too. Octagonal bezels were widespread in Roman times in western Europe, and became even more common during the Middle Ages. Black patina; otherwise well preserved.

Dating: 11th/13th century AD.

²⁹ During the Hellenistic, Roman, and Byzantine periods Astyra (Ἀστύρα) was a small town of Mysia between Antandrus and Adramyttium. Pausanias describes also a spring of hot water at Astyra (IV 35, 10). For the localisation of and a list of ancient sources on this site, see: <<https://topostext.org/place/396269UAst>>.

³⁰ Lenger and Yaraş 2010, p. 456, no. 29.

Conclusions

The small series of rings with inscriptions or signs we have presented here certainly does not exhaust the large number of existing examples or the considerable variations in decoration in Asia Minor. Rings 3, 6 and 7 have as their inscriptions an appeal to God for salvation or cure. No. 9 is very interesting because it expresses one's devotion through an object to a very popular saint. Other rings, such as nos. 2, 4 (with a monogram), 5 and 8 (with a monogram), bear the personal names of their owners. Ring 1 may be a gift to a girl, called 'beautiful'. Most of these rings seem to belong to the Late Antique–Early Byzantine period, while few others date from the Middle Byzantine period.

Notes and acknowledgements

Nos. 3–4 and 9–10 from the Archaeological Museum of Izmir were studied with an authorisation granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums on April 13, 2010 and enumerated as B.16.0.KVM.0.13.04.00–155.01.(TA10. B81)-77614. The necessary documentation was assembled between June 2010 and May 2017. We would like to thank to Mrs Zuhâl Küçükgüney and Ms Necla Okan (both from the Archaeological Museum of Izmir) for their assistance during the study of these objects.

No. 5 from the Museum of Afyonkarahisar was studied with four authorisations granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums on February 28, 2002 and enumerated as B.16.0.AMG.0.10.00.01/707.1–2 (002458), on June 5, 2002 and enumerated as B.16.0.AMG.0.10.00.01/707.1–2 (008638), on December 9, 2004 (for the year 2005) and enumerated as B.16.0.AMG.0.10.00.01/707.1/14 (030316) as well as on April 27, 2005 and enumerated as B.16.0.AMG.0.10.00.01/707.1(9)-54946. The necessary documentation was assembled during March 2002 and December 2005.

Nos. 6 and 8 from the Museum of Bergama were studied with an authorisation granted to Ms Gökçe Çiçek Keskin (Izmir/Çanakkale) by the Museum of Bergama on April 20, 2016 and enumerated as 75845132–155/396. The necessary documentation was assembled in May 2016. We would like to thank to Ms Gökçe Çiçek Keskin for her permission to publish her photo in this article.

No. 7 from the Museum of Ödemiş was studied with an authorisation granted by the Museum of Ödemiş on April 6, 2018 and enumerated as 25920734–155.01-E.302122. The necessary documentation was assembled in August 2018. We would like to thank to Mrs Aysen Gürsel (the Museum of Ödemiş) for her assistance during the study of these objects.

No. 11 from the Museum of Trabzon and no. 13 from the Museum of Kuva-yi Milliye in Balıkesir were studied

with an authorisation granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums on June 4, 2007 and enumerated as B.16.0.KVM.200.11.02.02.14.01.222.11.(TA07.40/A)-116546. The necessary documentation was assembled between August 2007 and May 2016.

We also would like to thank Mr Koray Selçik and Ms Berna Oğuz (both from Izmir) to study and publish nos. 1–2 and 11 from their private collections.

An Egyptian Bronze Lamp and Some Egyptian-Type Clay Lamps in the Museum of Mardin in Southeastern Turkey

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Abstract: In this brief paper an archaeological relation between Asia Minor and Egypt is reported which is attested by some oil lamps from the second to the first century BC. The focus is a bronze lamp in the Museum of Mardin in southeastern Turkey which originates probably from Alexandria. Also some Egyptian-type clay lamps will be presented in this paper which had a very wide diffusion in the Near East and in the area around the eastern Mediterranean and were imitated in the area of ancient Mardin.

Keywords: Egyptian bronze lamps, Egyptian-type clay lamps, Late Hellenistic period, Mardin, southeastern Turkey.

Özet – Mardin Müzesi’ndeki Bir Mısır Bronz Kandili ve Bazı Mısır Tipi Pişmiş Toprak Kandiller: Bu makalede konu edilen kandiller Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izni ile çalışılmıştır.

Bu kısa makalede İ.Ö. 2. yy.’dan İ.Ö. 1. yy.’a kadar bazı kandillerin üretildiği Mısır ile ilişkileri konu ediyoruz. Bu durum Mardin Müzesi’ndeki bronz bir kandile (olasılıkla İskenderiye’den gelen) dayanmaktadır ve diğer Mısır tipi kandiller Yakın Doğu’da ve Doğu Akdeniz çevresinde çok geniş bir yayılım göstermiş, ancak Mardin’de taklit edilmiştir.

Anahtar Kelimeler: Mısır bronz kandilleri, Mısır tipi pişmiş toprak kandiller, Geç Hellenistik Dönem, Mardin, Güneydoğu Anadolu Bölgesi.

Linked to local traditionalism, the material culture of the Early Byzantine period completely transmigrated into the following age dominated by Arab culture. Since many were not recast in the following centuries, the bronze oil lamps from Anatolia are extremely numerous (fig. 28.1). Only a few studies, other than the seminal work of Sümer Atasoy which appeared in 2005,¹ have been devoted to this group of material. We can recall very few contributions, such as that of Zeliha Demirel Gökçalp in 2002,² the aforementioned note by the authors and finally a study by Hüseyin Metin and B. Ayça Polat Becks³ on the metal lamps of the Museum of Burdur. The other unpublished lamps in Turkish museums remain therefore unknown to the general repertories.

In this brief article some lamps from Mardin in southeastern Anatolia will be presented. The first bronze lamp has already been reported by the authors of this paper, but

with an incorrect date.⁴ We also present here other clay lamps which are roughly contemporary with the first lamp, *i.e.* dated to the second/early first century BC. This latter group consists of lamps which imitate Egyptian models locally; but they are widespread in a vast area.

1. A bronze lamp in Mardin (fig. 28.1.1)

Acc. no. 2010/5865 (A) (or 7441).

Length 12.8 cm, Ø 5.1 cm, filling-hole Ø 2.0 cm, h. 3.0 cm.

Findspot. Mardin area (?), purchased on 18 October 2007 from Mr Fehmi Ceylan.

Handle damaged.

Dating. 150–50 BC.

Body and elongated spout with a large *infundibulum* surrounded by raised edge and a protruding tubular spout with a large wick hole. On the body two series of vertical ribs on the sides of the spout. On the side a sort of protruding cone. Decorated ring socket.

¹ Atasoy 2005.

² Demirel Gökçalp 2002.

³ Metin and Polat Becks 2015.

⁴ Laflı and Buora 2014, p. 440, pls. 2,4.

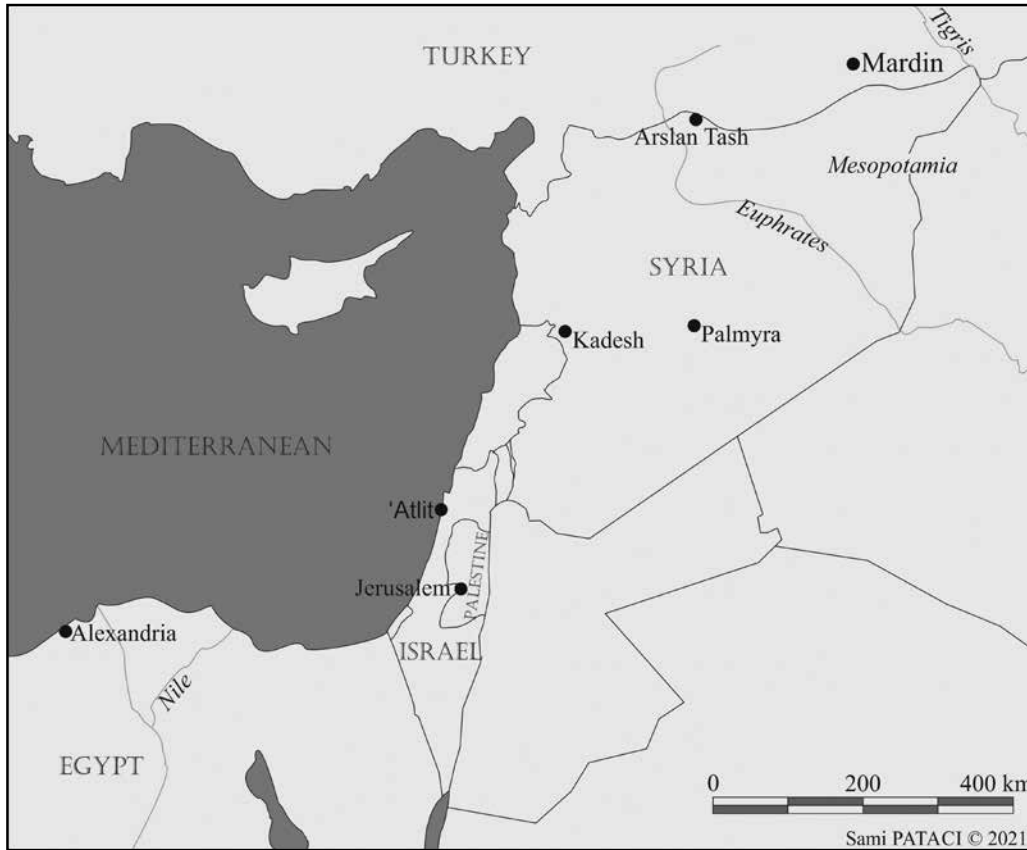
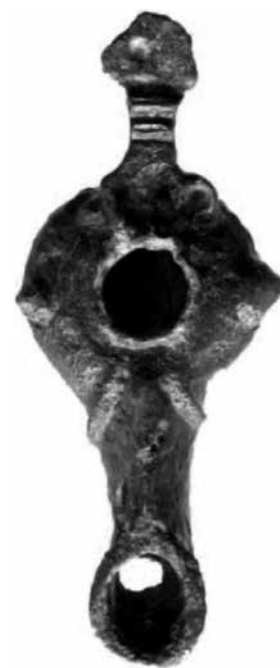


Figure 28.1. Places in Turkey and elsewhere referred to in the text (by S. Pataci, 2021).



Pl. 28.1.1. A lamp from the Museum of Mardin (by E. Laftı, 2011).



Pl. 28.1.2. A lamp from 'Atlit, Israel (after V. Sussmann 2016, p. 23).

The lamp was purchased by the Museum of Mardin so that one cannot assign it to a precise findspot. The city, located near the current Turkish border with Syria, is located about 400 km from the sea. Two years after our publication Varda Sussmann published a study on a completely identical lamp from the northern bay of 'Atlit in Israel (pl. 28.1.2) and a third specimen found about ten km south

of Dot: 'The elongated gabled nozzle, widening slightly at the end, is typical of Eastern Greek lamps made after the Ephesus-type lamps dated from the second half of the second century to the first half of the first century BC.'⁵ Other elements are common with Anatolian products, such

⁵ Sussmann in Galili, Syson, Finkielsztein, Sussman and Stiebel 2016, 24.

as protrusions on the sides of the body which is present in Pergamum. In general, a certain resemblance to the lamps of Ephesus is evident. These elements might suggest an Anatolian origin of the lamp, which could have been produced along the west coast (Ephesus or Pergamum?) from where it would also have reached the coasts of Palestine. Nevertheless, it should not be forgotten that the Mardin area, precisely through the study of oil lamps, shows itself in relation not only with northern Syria, but also with the coastal part, and more precisely the Egyptian one, starting from the second century BC.

In our lamp the nozzle is separated from the body by a pair of oblique bands. For example the double-ridges on the body defining the nozzle appear on several lamp of the British Museum (e.g. Q 3352, cf. pl. 28.2.4), for which Donald M. Bailey proposes a numerous series of comparisons ranging from Albania to Georgia and Jerusalem, but above all they seem similar to oil lamps from Egypt.⁶ We can also indicate several further examples in particular among the Ptolemaic Athribian clay lamps, dated from the end of the third to the early first century BC.⁷

The protruding and perforated side lugs appear in two other oil lamps of the British Museum, which also have an elongated ribbon handle, with two curved decorative motifs at the attachment to the body.⁸ One of them, Q 3543 (pl. 28.2.3), was placed next to another example put up for sale by Christie's in 1987 with alleged provenance from Fayyum and the other (Q 3544) was brought closer to another lamp in the Museum of Thessaloniki originated from Abydos.⁹ For the two London oil lamps the protruding lugs are made for the suspension.

Protruding lugs, long nozzle and the couple of ridges on the body are also present on two lamps of the Schloessinger Collection, one of which purchased in Jerusalem.¹⁰ Elongated spout, long shaped ribbon handle, protruding lugs and a nozzle with a section like a 'pelican beak' are elements that also appear in a bronze oil lamp from the tomb II of the Artyukhov barrow on Taman peninsula in Russia.¹¹

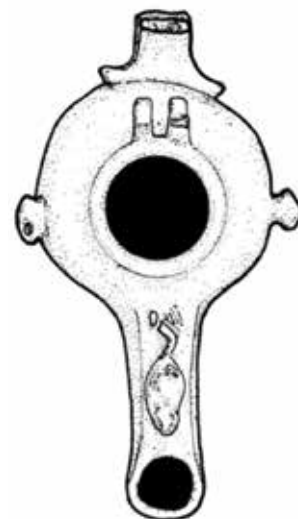
2. Lamps type Mlynarczyk D12 in Mardin (Pl. 28.3.1)
Four oil lamps are a derivation of the type, which was produced in Egypt, but also in Delos, Palestine, Cyprus, Pella (Macedonia) and also in Carthage.¹³ They have radial incisions on the shoulder and figures in relief on the spout. The lug is not always protruding. Sometimes only a track may remain of it. This mixture varies depending on



Pl. 28.2.1. A lamp from the Schloessinger Collection (after R. Rosenthal and R. Sivan 1978, no. 643).



Pl. 28.2.2. A lamp of the Schloessinger Collection (after R. Rosenthal and R. Sivan 1978, no. 644).



Pl. 28.2.3. A lamp in the British Museum, Q 3543 (by D.M. Bailey, 1996).

⁶ Bailey 1985, p. 9.

⁷ E.g. no. 98 (subtype B.a), no. 102 (subtype B.b.2), 108 (108 subtype B.c.2), no. 112 (subtype K.a), no. 115 (subtype K.b), 128 (subtype M.b), no. 131 (type D), no. 132 (type D), no. 137 (type F), no. 157 (type F), and no. 158 (type H).

⁸ Bailey 1980, Q 3543–3544.

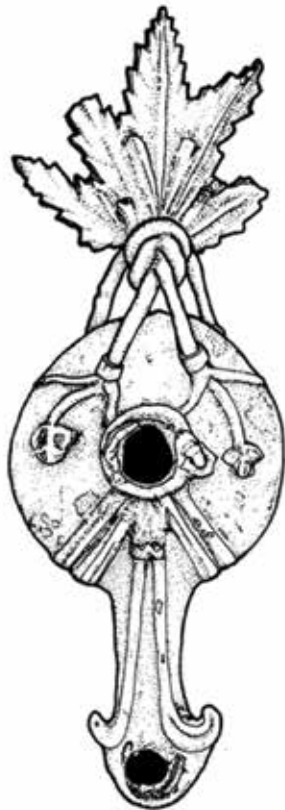
⁹ Bailey 1996, p. 8; cf. pl. 28.2.5.

¹⁰ Rosenthal and Silvan 1978, p. 156, nos. 643–644; cf. pl. 28.2.1–2.

¹¹ Treister 2005, p. 299, fig. 3. On the tombs of the Artyukhov barrow see Jackson 2010, particularly pp. 295–98 where the tomb's dating is established in the mid-second century BC.

¹² For these forms cf. Mlynarczyk 2012.

¹³ Chrzanowski 2019, 127. At Carthage it is the type Deneuve 15.



Pl. 28.2.4. A lamp in the British Museum, Q 3552 (by D.M. Bailey, 1996).

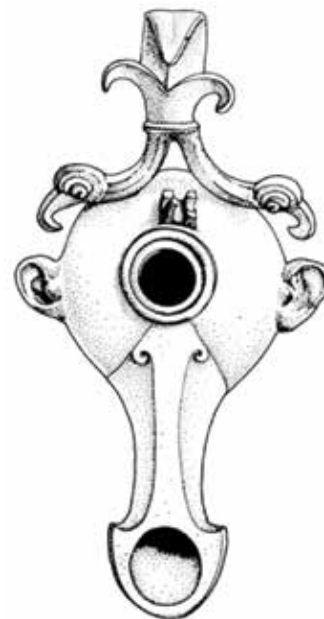
the area: in the case of Mardin it is whitish, while other specimens, for example in Palestine, have a reddish fabric.

Other typological features do also change, for example in the rendering of the radial grooves (more or less regular and deep) and also in the container that is often depicted on the spout. It can be framed in a simple rectangle or with detected edges. The shape of the vessel also changes and is often referred to as an *amphora* or *louthrophoros*. In addition, some oil lamps bear a sort of flower on the shoulder in low relief.

The type has been referred to as ‘Mesopotamian-Parthian’ by Rudolf Fellmann.

A dozen of these were found in a tomb within the Baalshamin sanctuary in Palmyra and dated to the second and first centuries BC.¹⁴ They find some comparisons with a specimen from the Archaeological Museums of Istanbul coming from Kadash¹⁵ (pl. 28.3.4) and with numerous others found by François Thureau-Dangin in Arslan Tash,¹⁶ (pl. 28.3.2-3) where they were probably produced. This site which is known as Arslantaş today, is situated about 240 km west of Mardin, immediately south of the Turkish border.

However, for shape and above all for the relief figure on the spout, these oil lamps seem to have also drawn



Pl. 28.2.5. A lamp in the British Museum Q 3551 (by D.M. Bailey, 1996).

inspiration from the lamps produced in a workshop in Alexandria (Egypt).¹⁷

They are dated to the mid-second and the first quarter of the first century BC.

3. Lamp of form Mlynarczyk E in Mardin (Pl. 28.4.1)

A lamp from Mardin belongs to this type which can also be dated between 125 and 75 BC. and perhaps produced in a workshop located in the lower Nile valley.¹⁸ Compared to the Egyptian prototypes, there are numerous differences, not only in terms of the mixture and paint, but also in the morphological features. Also among the examples in Mardin which were perhaps produced in a local workshop, we see the presence of a large feed hole, bordered by a raised frame, while in the originals there is a small concave disc. Other differences can be seen in the leaf grip and in the tape that closes it at the bottom. The figure above the spout does not seem well understood in this piece, where we perhaps find a vessel or more likely a greave.

4. Lamps type Mlynarczyk F (Pl. 28.4.3)

These lamps are divided into two subtypes, respectively F1, with geometric decorations on the shoulder, and F2, without decorations.¹⁹ Our oil lamps have a substantially identical shape, characterized by a short spout. They are all devoid of side lugs, which resolved them a variant of the primitive Egyptian form. Based on the mixture and the morphological characteristics, it seems to be possible to recognize a local production here, which perhaps already active since the end of the third century BC.

¹⁴ Sadurska 1975.

¹⁵ Kassab Tezgör and Sezer 1995, no. 458.

¹⁶ Thureau-Dangin 1931, p. 15, fig. 4

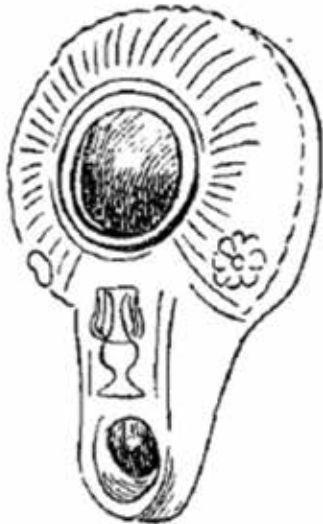
¹⁷ See Chrzanowski 2019, p. 127.

¹⁸ See Chrzanowski 2019, p. 131, no. 38; cf. pl. 28.4.2.

¹⁹ Chrzanowski 2019, p. 132; cf. pl. 28.4.4.



Pl. 28.3.1. A lamp from the Museum of Mardin (by E. Laflı, 2011).



Pl. 28.3.2. A lamp from Arslan Tash (after F. Thureau-Dangin, 1931, 15).



Pl. 28.3.3. A lamp from Israel (by E. Laflı, 2011).



Pl. 28.3.4. A lamp from the Archaeological Museums of Istanbul (after D. Kassab Tezgör and T. Sezer 1995, no. 458).



Pl. 28.4.1. A lamp from the Museum of Mardin (by E. Laflı, 2011).



Pl. 28.4.2. A lamp in the Bouvier Collection (after L. Chrzanovski 2019, 131, no. 38).



Pl. 28.4.3. A lamp from the Museum of Mardin (by E. Lafli, 2011).



Pl. 28.4.4. A lamp in the Bouvier Collection (after L. Chrzanovski 2019, 134, no, 45).

Conclusions

Archaeologically the Mardin area is very interesting for many reasons. Its location apparently placed it far from the great commercial relations along the coasts of the eastern Mediterranean. However, thanks also to its proximity to the Tigris River that was navigable and flanked by some important roads, in the Hellenistic period it was influenced by the coastal part of Anatolia as well as by the Palestinian and Egyptian coastal areas.

In Mardin the oil lamps of the Howland type 32 made in Kalymnos as well as the Ephesian lamps were imitated locally. No. 1 is certainly an Egyptian original, a beautiful bronze oil lamp probably from Alexandria and produced in the second half of the second century BC. Other Egyptian predecessors in terracotta, which however had a very wide diffusion in the Near East and in the area around the eastern Mediterranean, were imitated in Mardin locally.

Notes and acknowledgements

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For reading our manuscript we would like to express our gratitude to Professor Hugo Thoen (Ghent / Deinze).

This article is dedicated to the 80th birthday of Professor Hugo Thoen that was on 30 January 2021.

Bronze Crescent Lamps from Anatolia

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*In memoriam
 Cyril Alexander Mango
 (1928–2021)*

Abstract: This brief paper deals with five bronze oil lamps with crescent moon-shaped handle from Anatolia. Two from the Archaeological Museums of Istanbul are published by Sümer Atasoy and a further one, now in Malibu, was studied by Jean Bussière and Birgitta Lindros Wohl, while two others are unpublished. Compared to other regions of the Roman Empire, the number of this type of bronze lamps in Anatolia is not small as around 150 examples are so far known.

Keywords: Roman bronze lamps, crescent moon-shaped handle, Early Roman period, Anatolia.

Özet – Anadolu’daki Hilal Kulplu Bronz Kandiller: Bu makalede konu edilen iki bronz kandil Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izni ile çalışılmıştır.

Bu kısa makalede Anadolu’da ele geçmiş olan ve hilal şeklinde bir kulpa sahip beş adet bronz kandil ele alınmaktadır. Bu kandillerin ikisi İstanbul Arkeoloji Müzeleri’nde olup, Sümer Atasoy tarafından yayınlanmıştır. Jean Bussière ve Birgitta Lindros Wohl tarafından yayınlanan bir diğeri ise şu anda Malibu-A.B.D.’de olup, son iki kandil ise yayınlanmamıştır. Anadolu’da bu kandillerin varlığı Roma İmparatorluğu’nun diğer bölgelerine kıyasla çok küçük görünmemektedir. Neredeyse 150 adede kadar varan bu tür kandillerin Anadolu’daki sayısının azlığı bunu kanıtlamaktadır.

Anahtar Kelimeler: Roma Dönemi bronz kandiller, hilal şeklindeki kulp, Erken Roma Dönemi, Anadolu.

In the lychnological literature Roman bronze lamps with crescent shaped handle have already been well known. A little less than ten years ago Valentin Doroshko offered a distribution map of these lamps on 30 sites,¹ which we try to integrate and expand in this paper (**map 29.1**). To our knowledge, almost 150 lamps of this type have been published, not counting those that appear on numerous websites, such as those belonging to auction houses or antique shops. They seem mainly distributed in the western provinces of the Roman Empire, as well in Italy, but this impression derives largely from the number of studies in these areas that have been devoted to this kind of lamps, as

shown for example by the case of Bulgaria, where the type was widespread. To contribute to a better understanding, we present five oil lamps from Anatolia, three of which have already been published.

According to Laurent Chrzanovski, the plastic handle in the shape of a moon crescent on Roman oil lamps, both in terracotta and in bronze, appears at least in the Augustan age.² Lamps with such handle are few in number and have long been listed. The crescents in terracotta lamps are

¹ Doroshko 2013–2014.

² Chrzanovski 2015, 32: “Les réflecteurs de forme triangulaire ou en croissant de lune semblent naître en Italie, où ils auront un très grand succès depuis l’époque augustéenne jusqu’au règne d’Hadrien.”



Map. 29.1. Places in Turkey and elsewhere referred to in the text (by S. Pataci, 2021).

necessarily limited to a few variants.³ Around the mid-first century AD bronze oil lamps appear with a particularly elaborate crescent moon, on which the bust of Juppiter on the eagle or the image of other deities is fixed. One lamp of this type is kept in the Art Institute of Chicago and others are known from various parts of the Mediterranean.⁴ Among the types of bronze oil lamps with a crescent moon-shaped handle we can distinguish those with short spout which seems to be the oldest type, followed by those with medium and long spout. This distinction does not have much value, if other typological details are not taken into consideration, such as the presence/absence of ‘spines’ around the spout, the nozzle conformation (angled or anchor-shaped or rounded), the foot sections etc. Of course, each lamp constitutes in some way a product in this own right, moulded in the body by a main matrix, but susceptible to later variations in additional details.

Production centres

We do not have much evidence regarding the production centres of these objects. Maybe a large bronze workshop could be located in Capua. Indeed, a large number of them found, *i.e.* as many as 24, in Pompeii and Herculaneum could confirm this hypothesis, but as is known what has come down to us from ancient times is extremely

incomplete and accidental. On the basis of the findings’ number, other locations of possible workshops have been proposed, such as *e.g.* Siscia-Sisak.

A special case is the DVRNACCVS F(ecit) stamp on a lamp from Wederath-Belgium cremation tomb no. 2277. The grave contained the remains of a middle-aged woman (between 40 and 60 years old) along with a Riha 2.2.8 type *fibula*.⁵ In the inventory there were also some pottery vessels together with five Neronian coins one of which is minted in the year AD 69/70.⁶ *Durnaccus* is clearly the Latin form of the Celtic name *Durnacos*. It would be the origin of the name of the city of Tournai, identified as *Turnaco* in the Tabula Peutingeriana⁷ and is also found on the Celtic coins as DVRNA-COS.⁸ But it also appears on *fibulae* of the Aucissa type which was spread from Spain to Croatia.⁹

It seems likely that numerous workshops have existed variously distributed throughout the Roman Empire, also at its borders toward the Danube.

Chronology

The large number of lamps with crescent-shaped handle found in Pompeii and Herculaneum attest to their great

³ Michel Feugère distinguishes two of them in <artefacts.mom.fr>, but if we pay attention to all the typological features we can identify further examples.

⁴ Raff 2017. <<https://publications.artic.edu/roman/reader/romanart/section/1952>> (accessed on 1 July 2021).

⁵ Geldmacher 2004, p. 139.

⁶ Geldmacher 2004, p. 326.

⁷ Section 1. Belgica and Germania Inferior.

⁸ Cf. De La Tour 1985, no. 5762 or 5795.

⁹ See Šeparović 1998, p. 184; Lacabe 1995, pp. 141–42; Ivčević 2007, pp. 237–38.

fortune in the Flavian era. They remain in circulation during the first decades of the second century AD, but also in the third century and later. This is due to the fact that metal alloy lamps which were generally more resistant and even more valuable than terracotta ones, could be used for many generations.

The vitality of the plastic handle configured as a crescent moon is very long: it reappears also in the Early Byzantine period, when a cross is placed in the centre of the crescent.¹⁰ It remained in use until the medieval period, judging by an inscription that appears on a Spanish lamp.¹¹ The inscription in Ku-fic characters reports that Allah is the only God and Mohammed his prophet and would make it dated its last use to the time when the Arabs occupied Spain, which is not before the eighth century AD.

Anatolian lamps

The presence of these lamps in Anatolia is substantially in line with the rest of the Roman provinces, with the exception of Germany where 13 are documented, Bulgaria with about 16 lamps and obviously Italy where the presence of these oil lamps from Pompeii and Herculaneum is preponderant and constitutes almost 8% of the total of bronze lamps preserved in the Museo Archeologico Nazionale di Napoli.

According to current studies, the chronology of Anatolian lamps extends from the first century BC. to the second century AD. However, the dating of a lamp at the Archaeological Museums of Istanbul (our cat. no. 1) is based on a comparison with the body of a lamp in the British Museum and is without a lunar crescent shaped handle.¹² The same applies to the lamp in the J. Paul Getty Museum (our cat. no. 5) compared by Bussi re and Lindros Wohl with a lamp found on the Mahdia wreck. Even apart from the dating problems of the wreck itself,¹³ it is well known that the bronze lamps are very long-lived. It should also be noted that around the filling hole on the lamps from Malibu, there is a high border. According to Nazarena Valenza Mele this typological feature would have been applied in the bronze lamps starting from the mid-first century AD.¹⁴ If the crescent moon-shaped plastic handle appears on clay lamps from the Augustan age, or in any case in the first half of the first century AD, there is no reason to believe that their appearance on bronze lamps is much earlier.

¹⁰ <Worthpoint.com/whortopedia/roman-byzantine-bronze-oil-lamp-cross-129876857> (accessed on 1 July 2021).

¹¹ Real Academia de la Historia, *Antigüedades medievales*, Madrid 2006, p. 125, n. 180. According to Bussi re, Lindros Wohl 2017, p. 450, bronze oil lamps were in use "until the Arab invasion of the Mediterranean in the seventh century AD, after which their occurrence wanes".

¹² Atasoy 2005, no. 9.

¹³ See Kach 1997.

¹⁴ Valenza Mele 1977, p. 159.



Figure 29.1. A lamp from the Archaeological Museums of Istanbul (after S. Atasoy 2005, no. 9).



Figure 29.2. A lamp from the Archaeological Museums of Istanbul (after S. Atasoy 2005, no. 9).

Catalogue

No. 1. From Archaeological Museums of Istanbul (fig. 29.1)

Acc. no. 86.195.

Findspot: unknown (confiscated).

Measurements: length: 7.7 cm, width: 3.4 cm, h: 2.8 cm.

Very small lamp compared by Atasoy to another lamp housed in the British Museum. Thus, he dated it to the first century BC./first century AD. But it should more likely dated to the first century AD.

Reference: Atasoy 2005, 5, no. 9.

No. 2. From the Archaeological Museums of Istanbul (fig. 29.2)

Acc. no. 88.49.

Findspot: unknown (purchased).

Measurements: length: 10.3 cm, width: 5.1 cm, h: 4.3 cm (with crescent).

Large handle, almost as wide as the lamp, with enlarged endings.

By Atasoy dated to the first century AD.

Reference: Atasoy 2005, 12, no. 23.

No. 3. From the Museum of Silifke (fig. 29.3a-b)

Findspot: Silifke (ancient Seleucia ad Calycadnus) in Cilicia in southern Turkey (?).

Circular body with a large *infundibulum*, underlined by an internal step and an elongated spout. Nozzle with an angular tip. Prominent 'volute-spines' at body end of the nozzle. Above the vertical ring loop, a crescent moon with a triangular section is set with the tip bent outwards.

Similar to British Museum Q 3636 (from Dura Europos), Q 3645 and Q 3648.¹⁵

Dating: mid-first/early second century AD.

Type Loeschcke 19; Valenza Mele 1981, type 9.

¹⁵ 1996, pp. 30–32.



Figure 29.3a. A lamp from the Museum of Silifke (after <artefacts.mom.fr>).



a



Figure 29.3b. A lamp from the Museum of Silifke (by E. Lafli, 2016).

Comparisons: Valenza Mele 1981, type 9; De Spagnolis and De Carolis 1983, 33, no. 15.
Reference: unpublished.

No. 4. From the Museum of Anatolian Civilisations in Ankara (figs. 29.4a-b)

Findspot: unknown.
Measurements: length: 7.7 cm, width: 3.4 cm, h: 2.8 cm.
Flat-topped nozzle. The body is surrounded by a raised rim. Suspension ring in front of crescent and on each side of the body.
Dating: second half of first century AD.
Similar to British Museum lamp Q 3660.¹⁶
The form is very common and there have numerous comparisons in the Roman world.
Reference: unpublished.

No. 5. From the Paul J. Getty Museum in Los Angeles, CA (fig. 29.5)

Findspot: unknown.
Measurements: length: 9.5 cm, width: 4.8 cm, h: 2.6 cm.
“Crescent with a small globule at each end; large ring behind. Globular body with rounded plain rim. Large



b

Figure 29.4a-b. A lamp from the Museum of Anatolian Civilisations in Ankara (by E. Lafli, 2016).

plain-lipped filling-hole, lid missing. Two round-tipped volute-nozzles; no inner volute-knobs but instead sharp points; no ribs on sides under volutes.”¹⁷
Dating: first century BC./first century AD (?) or more likely second half of first century AD.
Reference: Bussiere and Lindros Wohl 2017, no. 617.

List of bronze lamps with crescent moon plastic handle

Morocco

1) Volubilis;¹⁸

¹⁶ Bailey 1996, p. 36.

¹⁷ Bussiere and Lindros Wohl 2017, p. 457.

¹⁸ Boube-Picot 1975, pls. 85–86.



Figure 29.5. A lamp from the J. Paul Getty Museum (after J. Bussière and B. Lindros Wohl 2017, no. 617).

Spain

- 2) Andujar, Jaen;¹⁹
- 3) Malaga;²⁰
- 4) Museo Numantino de Soria;²¹
- 5) Tarracona;²²
- 6) Salamanca;²³
- 7) Granada;²⁴
- 8) Sevilla;²⁵

France

- 8) Vaison-la-Romaine;²⁶
- 9) Lyon;²⁷
- 10–11) Lyon;²⁸
- 12) Le Pouzin;²⁹
- 13) Avignon;³⁰
- 14) Toulouse;³¹
- 15) Poilhes <artefacts.mom.fr>, LMP-4028, 3;
- 16) Murviel-les-Montpellier, Les Terres Blanches <artefacts.mom.fr>, LMP-4028, 2;
- 17) Biesheim, Oedenburg <artefacts.mom.fr>, LMP-4028, 1;

Great Britain

- 18–22) British Museum Q 3619, Q 3648, Q 3662, Q 3697 and Q 3701;³²
- 23) Colchester (British Museum Q 3661);

¹⁹ Pozo 1997, p. 219.

²⁰ Pozo 1997, p. 227, no. 22, pl. 8, 3, 4.

²¹ Pozo 1997, p. 218.

²² Pozo 1997, p. 228.

²³ Blazquez 1959, no. 4.

²⁴ Pozo 1997, p. 227, no. 23.

²⁵ Pozo 1997, p. 228.

²⁶ Goudineau and De Kisch 1984, p. 73; Bailey 1996, p. 36.

²⁷ Bailey 1996, p. 36.

²⁸ Bailey 1996, p. 32.

²⁹ Bailey 1996, p. 32.

³⁰ Bailey 1996, p. 36.

³¹ Pozo 1997, p. 228.

³² Bailey 1996.

24) Westhall, Suffolk;³³

25) London, from Cannon Street and Prince Street;³⁴

26) Chester, North Tyne River;³⁵

27) Lowden Hill (in display; hung by chain);

28) Exeter;³⁶

29) Suffolk;³⁷

30) Toronto, Royal Ontario Museum;³⁸

The Netherlands

31–33) Nijmegen;³⁹

Nijmegen, Museum het Valkhof (with inscription *Iuliae Lucinae*);

35–36) Stein, two examples, one found with a Hadrian's coin;⁴⁰

Germany

37) Dormagen;⁴¹

38) Museum in Saarland;

39–44) Trier, six examples. Perhaps locally produced;⁴²

45–46) Wehringen;⁴³

47) Günzburg;⁴⁴

48–49) Nida-Hedderheim;⁴⁵

50) Neuss;⁴⁶

51) Xanten, found in 1640;⁴⁷

52–53) Mainz;⁴⁸

54) Kassel Museum;⁴⁹

Switzerland

55) Vindonissa;⁵⁰

56) Solduno;⁵¹

57) Vidy, Roman Museum;

Italy

58) Velleia;⁵²

59) Pavia, Museo dell'Istituto di Archeologia;⁵³

60–61) Verona;⁵⁴

62) Padova;⁵⁵

63–66) Bologna;⁵⁶

67) Campogalliano, Villa Rustica;⁵⁷

³³ Bailey 1996, p. 36.

³⁴ Bailey 1996, p. 36.

³⁵ Bailey 1996, p. 36, a recent import?

³⁶ Holbrook and Bidwell 1991: p. 256, fig. 116, 105; Bailey 1996, p. 36.

³⁷ British Museum Q 3664, Bailey 1996, p. 32.

³⁸ Hayes 1984, p. 209, from Britain?

³⁹ Evelein 1928: pl. 18, nos. 8–11; Bailey 1996, p. 36.

⁴⁰ Bailey 1996, p. 36.

⁴¹ Stark 1869, pl. 1, 2.

⁴² Goethert 1997, p. 141, figs. 122, 123.

⁴³ Fasold 2000, p. 196, fig. 152.

⁴⁴ Bailey 1996, p. 36.

⁴⁵ Kohlert-Németh 1991, p. 50, fig. 24; Bailey 1996, p. 36.

⁴⁶ Bailey 1996, p. 36.

⁴⁷ Bailey 1996, p. 36.

⁴⁸ Menzel 1969, nos. 673, 682.

⁴⁹ Bieber 1915, p. 93, no. 420, pl. 54.

⁵⁰ Loeschke 1919, pl. 21, 1056a.

⁵¹ Leibundgut 1977, pl. 20, no. 1010; Bailey 1996, p. 36.

⁵² D'Andria 1970, p. 68, no. 67, pl. 22.

⁵³ Bailey 1996, p. 36.

⁵⁴ Museo Moscardo, p. 60.

⁵⁵ Zampieri 2000, 191, no. 368.

⁵⁶ De' Spagnolis Conticello and De Carolis 1997, nos. 22–25.

⁵⁷ Corti 2004, p. 271.

- 68)** Chieti, Museo archeologico nazionale d'Abruzzo, acc. no. 3451;
69) Rome? British Museum;⁵⁸
70) Ostia, Musei Vaticani;⁵⁹
71–101) Pompeii and Herculaneum;⁶⁰
102–103) Oplonti, British Museum;⁶¹
104) Campania ? British Museum;⁶²
105) Catania;⁶³
106) Madrid, Archaeological Museum; from Italy;⁶⁴

Croatia

- 107)** Argyruntum;⁶⁵
108–111) Sisak;⁶⁶
112) Osijek;⁶⁷

Austria

- 113)** Lauriacum;⁶⁸
114–115) Carnuntum;⁶⁹

Hungary

- 116)** Aquincum Museum.

Slovenia

- 117)** Poetovio-Ptuj;⁷⁰
118) Emona-Ljubljana;⁷¹

Romania

- 119)** Ilishua;⁷²
120) Boletin,⁷³ dated to the last decade of the first century AD;
121) Poiana;⁷⁴

Bulgaria

- 122)** Oescus;⁷⁵
123–124) Vidim;⁷⁶
125–128) Vratsa;⁷⁷
129) Pleven;⁷⁸
130) Lom;⁷⁹
131) Oryahovitsa in the district of Starozagorskiy;⁸⁰
132) Novae;⁸¹

- 133)** Montana;⁸²
134) Varna;⁸³
135–137) Sofia;⁸⁴

Ukraine

- 138)** Chersonesos, excavated in 1903;⁸⁵

Turkey

- 139–140)** Archaeological Museums of Istanbul (nos. 1–2 in this paper);⁸⁶
141) The Museum of Silifke (no. 3 in this paper);
142) Museum of Anatolian Civilisations in Ankara Museum (no. 4 in this paper);
143) Malibu, CA (no. 5 in this paper);⁸⁷

Syria

- 144)** Dura-Europos in the British Museum;⁸⁸

Israel

- 145)** Tel Aviv Museum, Schloessinger Collection;⁸⁹

Emirates

- 146)** Ed-Dor.⁹⁰

Notes and acknowledgements

Cat. no. 3 in the Museum of Silifke was studied with an authorisation granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums.

Cat. no. 4 in the Museum of Anatolian Civilisations in Ankara was studied with an authorisation granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums, too.

⁵⁸ Bailey 1996, Q 3645.

⁵⁹ Bailey 1996, p. 32.

⁶⁰ De' Spagnolis Conticello and De Carolis 1997, p. 57.

⁶¹ Bailey 1996, Q 3625 and Q 3644.

⁶² Bailey 1996 Q 3696.

⁶³ Libertini 1930, p. 132, no. 516, pl. 62.

⁶⁴ Pozo 1997, p. 219.

⁶⁵ Abramić and Colnago, p. 65, fig. 21.

⁶⁶ Ivanyi 1935, p. 300, nos. 4299–4301, 61, 1; Vikič-Belancič 1975, p. 65, pl. 50, 4, 6, figs. 6, 2, 3; Bailey 1996, p. 36.

⁶⁷ Celestin 1901, p. 9, no. 34.

⁶⁸ Deringer 1965, p. 126, pls. 13, 401.

⁶⁹ Alram-Stern, nos. 619–620; Bailey 1996, p. 36.

⁷⁰ Miki-Curk 1976, pl. 23, 7.

⁷¹ Petru 1972, pl. 97, 11.

⁷² Simion 2003, p. 61, pl. 26, no. 31.

⁷³ Kruni 1994, pp. 81–86, fig. 1.

⁷⁴ Egri and Rustoiu 2008, pp. 80–81, pls. 30, 8.

⁷⁵ Kuzmanov 1992, p. 53, no. 425.

⁷⁶ Torbov 2014, type 49, nos. 507–508, pl. 40, 1–2.

⁷⁷ Torbov 2014, type 51, nos. 516–520, pl. 41, nos. 2–5.

⁷⁸ Torbov 2014, type 51, no. 521, pl. 41, no. 1.

⁷⁹ Torbov 2014, type 56, no. 529, pl. 42, no. 14.

⁸⁰ Raikov 1940, pp. 367–68, no. 4.

⁸¹ Press 1985, p. 183, pl. 64, 2a.

⁸² Alexandrow 1981; Bailey 1996, p. 36, Torbov 2014, pl. 41, no. 1, no. 515.

⁸³ Minchev 2003, p. 110, no. 5.

⁸⁴ Kuzmanov 1992, p. 142, no. 416; Torbov 2014, p. 197.

⁸⁵ Doroshko 2013–2014, fig. 6, 1.

⁸⁶ Atasoy 2005, nos. 9 and 23.

⁸⁷ Bussiere and Lindros Wohl 2017, n. 617.

⁸⁸ Bailey 1996, Q 3636, p. 30, pl. 31.

⁸⁹ Sivan and Rosenthal 1978, no. 655.

⁹⁰ Bailey 1996, p. 32.

Bronze Lamps of the Museum of Isparta in Pisidia (Southern Turkey)

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Abstract: There are more than 400 lamps from different periods in the collection of the Museum of Isparta. Bronze lamps are fewer in number; most of the rest of lamps are in terracotta.

In this brief paper three bronze lamps are presented, findspot of which are unknown. They will be evaluated chronologically based on other similar metal lamps. The first lamp has a flat circular body, a sharp profile and an extremely flat upper part. The two others are more oval than the first one. The first one should be dated into the first/second century AD, while the other two examples are from the fifth/seventh century AD.

Keywords: Bronze lamps, typology, Roman period, Early Byzantine period, Museum of Isparta, Pisidia, southwestern Turkey.

Özet – Isparta Müzesi’nden Bronz Kandiller: Isparta Müzesi envanterinde farklı dönemlere ait 400’den fazla kandil bulunmaktadır. Bu kısa makalede üç adet bronz kandil konu edilmiştir. Bronz kandiller gerek sayıca daha az tespit edilmiş olmaları, gerekse çalışması daha zor olan eserler olmaları nedeniyle, pişmiş toprak benzerlerine oranla derinlemesine irdelenememiştir. Bu çalışmada yer verilen eserler sayıca çok az olmaları nedeniyle tipolojik olarak gruplanamamışlardır. Buna karşın söz konusu bronz kandiller öncelikle tek tek tanıtılacak ve ardından, benzer metal örnekler doğrultusunda kronolojik olarak değerlendirileceklerdir. Çalışmamızda yer verdiğimiz ilk kandil dairesel ve yayvan gövde yapısıyla dikkat çeker. Isparta Müzesi envanterinde yer alan diğer iki kandil ise ilkinde oranla daha oval hatlara sahiptir. Çalışmamızda yer verdiğimiz bu eserlerin buluntu alanları ve kontekstleri belirsizdir. Ayrıca sayıca çok az olmaları nedeniyle de tipolojik sınıflandırmaya gidilememiştir. Buna karşın analogik olarak irdelediğimiz eserlerden ilkinin İ.S. 1.-2. yy.’a, diğer iki örneğin ise İ.S. 5.-7. yy.’lara tarihlenmesi gerektiğini düşünmekteyiz.

Anahtar Kelimeler: Bronz kandiller, tipoloji, Roma Dönemi, Erken Bizans Dönemi, Isparta Müzesi, Pisidia, Güneybatı Anadolu.

The Museum of Isparta¹ stores more than 400 lamps from different periods.² In this brief paper three bronze lamps will be presented. Because bronze lamps are identified in smaller quantities in Turkey, they were not studied as intensive as terracotta lamps.³ Instead, these lamps have mostly been examined with terracotta lamps or associated

with some other contexts.⁴ Also, the typology of bronze lamps in Asia Minor has not been studied in detail or their typology has been evaluated by following their terracotta parallels.

¹ I would like to thank the director of the Museum of Isparta, Mr Mustafa Akaslan, and curators of the museum, Mrs Özgür Perçin and Mrs Şerife Işık Sezer, for their constant support. I would also like to express my gratitude to Professor Ergün Laflı (Izmir) for the correction of this paper.

² On Hellenistic mouldmade lamps cf. Fırat 2015.

³ For a general overview on the bronze lamps from southern Turkey cf. Laflı and Buora 2014

⁴ Duck-shaped lamps have extremely detailed forms: Köster 1910, pp. 1–3. A dedication to Cybele: Vertet 1962, pp. 348–50. For two examples from the Hellenistic period: Smith 1964, pp. 101–24. A thesis that examined the lamps from Kibyra is also included some examples of bronze oil lamp: Metin 2012, pp. 242–43, and 707, figs. 84–85, nos. K812–813. A group of bronze lamps from the sites in the Northern Black Sea area: Triester 2005, pp. 293–98. For a unique example from the Hellenistic period: Sussman 2006, pp. 39–50. For some lamps from the Archaeological Museums of Istanbul: Atasoy 2008, pp. 31–32. For some examples from the Baron Tositsas Foundation Museum: Papadopoulou 2005, pp. 257–62, pls. 120–123.



Figure 30.1a-d. A bronze lamp with a circular body (by M. Firat, 2011).

Description

Our no.1 has a flat circular body, a sharp profile and a flat upper body part (fig. 30.1). It is completed by a long, arrowed nose extended forward from its shoulder level. Noticeable in the nose part are symmetrically placed volutes. The arrowhead formed nose is completed with an annular wick hole. It bears a possible manufacturing defect that was not corrected. Its discus is suitable for a small dome-shaped lid. Starting from the middle of the body, rising symmetrically and making a spiral, the dual handle ends with two symmetrical leaves. The currently missing thin chain that extends from the ring to end of the handle points to a small dome-shaped lid.

Lamps nos. 2 and 3 possess more oval lines than the first lamps (figs. 30.2-3). They have an oval body and forward elongated, raised nose tractors. As in the clay examples, the nose and inner part of each lamp has a small-convex profile that is used to prevent oil leakage and provide comfortable seating for the wick. The upper part of the nose has been leveled. The wick holes are completed with a small circular platform. Their discus holes are also circular

and large. They are completed with a small dome-shaped lid, but only lamp the lid of no. 2 is preserved which has a very simple design: a small, fairly primitive bird figure is depicted on this slightly convex lid. Both of the lamps have no pedestals. Their handles open outward at a 45° angle from the centre and have been designed in the form of a leaf. This leaf at the lower-outer portion is supported by a nearly circular ring. In addition, there is a support from the leaf towards the ring handles. The end portion of the leaf is finished like a small bead.

Evaluation

Lamp no. 1 is transferred from the Archaeological Museum of Afyonkarahisar to Isparta. Lamps 2 and 3 were purchased from local salesmen. Therefore, the findspots and possible contexts of these three lamps are uncertain.

Typologically lamp no. 1 should be classified to the group of volute nosed lamps which stands out a type often encountered in antiquity. Five similar examples in the British Museum which were published by H.B. Walters,

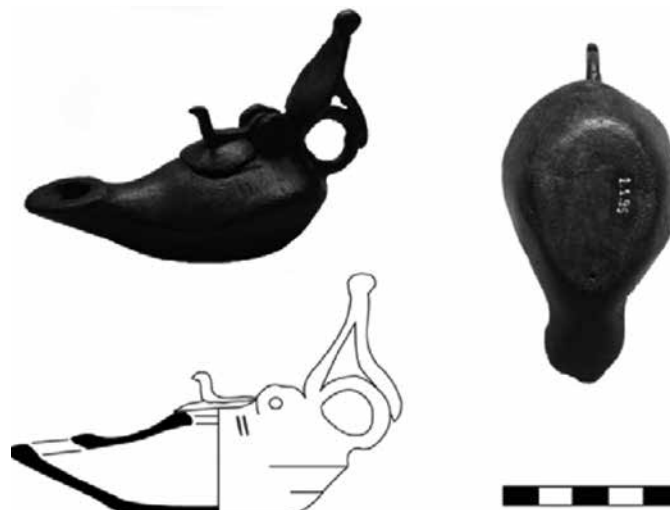


Figure 30.2a-c. A bronze lamp with a small-convex profil (by M. Firat, 2011).



Figure 30.3a-d. A bronze lamp with an oval body (by M. Firat, 2011).

offer extremely close profile to our no. 1 in Isparta.⁵ Two lamps from the same museum which were examined by Donald M. Bailey, are dated to the first century AD.⁶ These lamps are believed to be originated from Italy due to their typology and handle design, and match exactly to our lamp 1 in Isparta. Three examples in the G.M. Kam Museum, which were assessed by Evelein, are similar, too.⁷ Of these, nos. 1 and 6 are extremely close in terms of their typology as well as handle design. In a study of lamps stored in the collection of the Université Franch-Comté there are some similar examples to our no. 1:⁸ lamps nos. 207 and 209 differ, however, from our lamp no. 1 because of its double-nosed structure (no. 209) and small vertical handle (no. 207). These lamps are dated to the first century AD. Another oil lamp similar to our no. 1 is stored in the L. Basch Collection and was analysed by Tihamér Szentléleky.⁹ Although the profile of this lamp is compatible with our lamp no. 1, upper part of its handle differs with its heart-shaped leaves. It has also been dated to the first century AD. Among the Roman lamps from Switzerland that have been published by A. Leibundgut, there is a similar lamp, too.¹⁰ This lamp is dated to the first century AD. As well. Two further lamps in the Römisch-Germanisches Landesmuseum in Mainz are the exact parallels to our no. 1.¹¹ They resemble to the Loeschcke type XIX and dated to the first century AD. A bronze lamp from Sidi Khrebish in Libya that is assessed by Bailey

and dated to the mid-first century AD has also similar typological features to our no. 1 in Isparta.¹²

The bronze lamps nos. 2 and 3 in Isparta are oval lamps with a lid and leaf shaped handles. In both of the lamps, the profile is very similar. Typological parallels to these lamps have been published in several studies. A similar example was presented in Szentléleky's publication.¹³ A lamp in this study is very similar to nos. 2 and 3 in Isparta in terms of its body, nose and handle design, but it differs with its extra chain on the nose. These parallel lamps as well as some similar lamps kept at the Museum of Fine Arts in Boston, MA are dated into the fourth/fifth century AD. Bailey and Maria Xanthapoulou, however, have dated some other similar lamps into the fifth/sixth century AD:¹⁴ among the metal lamps at the British Museum examined by Bailey, a close parallel to our nos. 2 and 3 exists.¹⁵ Another bronze lamp in a group from Tharros that is assessed by Bailey can also be shown as a similar example.¹⁶ As it is dated to the early seventh century AD, this lamp is slightly different because of its large walled nose and typological details on its shoulder. Another similar lamp is known from the private collection of Papadopoulou.¹⁷ With its oval form, nose characteristics, lid, etc. this lamp has an extremely close profile to our lamps nos. 2 and 3. However, it differs from these lamps with its ring form and the cross motif on its handles. It should be produced in a Syrian workshop and dated to the sixth century AD.

⁵ Walters 1914, pp. 12–13 and 222, pls. 6 and 8, nos. 63, 65, 70, 73, and 1468.

⁶ Bailey 1996, p. 30, pl. 32, nos. Q3637–3638.

⁷ Evelein 1928, pp. 67–69, pl. 18, nos. 1, 4, and 6.

⁸ Lerat 1954, pp. 33–34, pl. 24, nos. 207 and 209.

⁹ Szentléleky 1969, pp. 141–43 and 145–146, no. 282.

¹⁰ Leibundgut 1977, p. 299, pl. 20, no. 1003.

¹¹ Kirsch 2002, p. 160, pl. 27, nos. 609–610.

¹² Bailey 1985, p. 176, fig. 12, pl. 39, no. C1267.

¹³ Szentléleky 1969, pp. 144–47, no. 288.

¹⁴ Bailey 1996, p. 68, pl. 79, no. Q3791; as well as Xanthapoulou 2005, p. 304, pl. 137, fig. 8.

¹⁵ Bailey 1996, pp. 70–72, pls. 81–82, nos. Q3800–3810.

¹⁶ Bailey 1962, pp. 43 and 45, pl. 8, no. 45.

¹⁷ Papadopoulou 2005, p. 259, pl. 121, fig. 8.

12 lamps located at various museums in Turkey are the nearest parallels to our two lamps in Isparta.¹⁸ These lamps are dated to the fifth-seventh century AD and have extremely close profiles. In particular, nos. 3 and 4 within this group of bronze lamps differ with their handles with a cross motif. A further similar lamp is presented by Topoleanu which is kept in the Museum of History and Archaeology of Ploiești in Romania and dated to the sixth-seventh century AD.¹⁹ It differs from the lamps nos. 2 and 3 with its dual wick hole and cross motif on the handle.

Possible production sites for these three lamps have not been determined. Analogically, lamp no. 1 can be dated to the first century AD and nos. 2 and 3 to the fifth/seventh century AD.

Catalogue

No. 1: A bronze lamp with a circular body (**pl. 1, no. 1**).
Repository and provenance: Acc. no. 2.32.89. It is transferred from the Archaeological Museum of Afyonkarahisar.
Dimensions: H: 2.5 cm, base diam.: 3.1 cm, L: 11.3 cm.
Colour: Dark green and brown.

No. 2: A bronze lamp with a small-convex profile (**pl. 2, no. 2**).
Repository and provenance: Acc. no. 1.1.95. Acquisition.
Dimensions: H.: 3.2 cm, base diam.: 4.6 cm, L.: 11.4 cm.
Colour: Dark green and brown.

No. 3: A bronze lamp with an oval body (**pl. 3, no. 3**).
Repository and provenance: Acc. no. 7.1.79. Acquisition.
Dimensions: H.: 3.2 cm, base diam.: 3.2 cm, L.: 11.5 cm.
Colour: Dark green and brown.

¹⁸ Demirel Gökalp 2005, pp. 69–70, pl. 30, figs. 3–5.

¹⁹ Topoleanu 2012, pp. 225–26, pl. 17, no. 134.

A Bread Stamp with the Expression of $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$ in the Museum of Afyonkarahisar (Western Turkey)

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Abstract: The Archaeological Museum of Afyonkarahisar in western Turkey preserves an inscribed bronze stamp for the eucharistic bread. At the centre of the circular stamp there are some letters in relief which form the inscription $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$ in the shape of a cross. This formula was very widespread in various periods and it refers to the gospel and sacred texts. On the basis of a comparison with some *amphora* stamps, we propose a dating to the Middle Byzantine period.

Keywords: Eucharistic bread stamp, $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$, Middle Byzantine period, sigillography, Afyonkarahisar, Phrygia, western central Turkey.

Özet – Afyonkarahisar Müzesi’nde Bulunan $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$ İbareli Ekmek Damgası: Bu makalede konu edilen mühür Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü’nün yazılı izni ile çalışılmıştır.

Afyonkarahisar Arkeoloji Müzesi’nde ökaristik ekmekleri damgalamakta kullanılan bir bronz mühür bulunmaktadır. Bu dairevi mührün ortasında, haç şeklinde $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$ ibaresini oluşturan kabartma harfler mevcuttur. Çeşitli dönemlerde çok yaygın olan bu ibare ile Hristiyanlık kutsal metinlerine atıfta bulunmaktadır. Bazı damgalı *amphora* kulpları ile karşılaştırıldığında bu mühürü Orta Bizans Dönemi’ne tarihlendiriyoruz.

Anahtar Kelimeler: Ökaristik ekmek damgası, $\Phi\Omega\Sigma + \text{Z}\Omega\text{I}$ ibaresi, Orta Bizans Dönemi, sigillografi, Afyonkarahisar, Phrygia Bölgesi, İç Batı Anadolu Bölgesi.

Clay stamps found in Neolithic settlements in Macedonia and other parts of south-eastern Europe point to their use in the preparation of bread.¹ In pre-Christian, Greco-Roman Asia Minor, bread was stamped with the name of the baker in order to establish the source of the bread and prevent attempts at forgery, or for use in certain occasions such as ritual performances. Christian stamps were also used to mark bread, mostly for liturgical purposes.² During the Byzantine period, bread identified by eucharistic bread stamps was used for the consecrated bread in the Divine Liturgy (Eucharist). These differ from other groups of stamps on terracotta lamps, tiles, bricks and *amphorae*. In the sixth or seventh century AD stamps were more likely to portray a cross or a Christian invocation of some sort.³ In the Byzantine period stamping implements were widely

used.⁴ Michael Grünbart has calculated that there are at least five hundred ancient stamps for bread, in wood, terracotta or metal.⁵ Such stamps could also be placed on *eulogia* breads and other breads distributed to devotees, as posited by Christopher Walter.⁶ The Eucharist is a Christian rite, in the celebration of which Christians remember both Christ’s sacrifice of himself on the cross and his address to the apostles at the Last Supper.⁷ The latest solid evidence for the practice of stamping the liturgical *prospora* is provided by a stamp dated to 1.265–1.266 AD at Mount Sinaï in Egypt.⁸

¹ Kakish 2014, p. 20.

² Cf. Galavaris 1970.

³ Caseau 2012, p. 120.

⁴ Grünbart 2006, p. 16.

⁵ Grünbart 2006, p. 13, n. 1; and also Caseau 2014, pp. 609–10.

⁶ Walter 1997, p. 199.

⁷ The phrase *τον κλάσαι αρτον* in Greek appears five times in the New Testament: Luke 24:35; Acts 2:42, 2:46, 20:7 and 20:11.

⁸ Walter 1997, pp. 199–200.



Figure 31.1. Places in Asia Minor referred to in the text (by S. Pataci, 2018).

A very extensive collection of Byzantine artefacts are displayed and stored in the Museum of Afyonkarahisar in Phrygia, a town between Izmir and Ankara in western central Turkey (fig. 31.1). Byzantine sites in the surroundings of Afyonkarahisar are small, but numerous; cities like Amorium are few in number. Phrygia was, however, a significant region for the Byzantine Empire as it was a main source for marble and agricultural goods.

In the display case of the Byzantine artefacts in the Museum of Afyonkarahisar a bronze stamp for the Eucharist bread is on display (fig. 31.2). As the majority of the Byzantine artefacts of this museum were purchased from antiquities dealers, it is difficult to know their provenance and date them precisely.

Measurements: H. 8.5 cm, h. of letters 2.3 cm, th.: 2.6 cm.
Material: Bronze.

Findspot: Surroundings of Afyonkarahisar in Phrygia, western central Turkey.

Typological description and state of preservation: It is a typical circular stamp. At the top of a dish-shaped base a small square handle was affixed. The lower part, which we deal with, was used to impress a text on the raw surface of the bread. The shape of the object indicates that it was a stamp specifically manufactured for marking bread buns.

By pressing the stamp on an unbaked loaf, the pattern was impressed in relief on the soft dough and remained visible on the baked bread.⁹ Undamaged.

Epigraphic description: In the stamp two words with three letters each are arranged in the form of a cross so that the omega is situated in the centre. From top to bottom the text reads ΦΩΣ (φῶς; light), and from right to left ΖΩΙ (ζωή; life). ζωή is spelt with an I instead of a H, which is common in this period. The metaplasm ζωή > ζωί is an example of the *iota-cism* I < H, described, for example by Claude Brixhe,¹⁰ and it reflects the pronunciation. The sigma is lunate.

Dating: It is not possible to date the object with any certitude. The circular shape and the material is similar to numerous Middle Byzantine stamps, also used for *amphorae*.¹¹ The presence of I instead of H seems to correspond to this dating. Furthermore, this particular stamp shares many similarities in its framing style and general size with several unpublished examples in Turkey, dating to the Middle Byzantine period; therefore it should be dated from the 11th to 12th century AD.

⁹ Di Segni 2014, p. 31.

¹⁰ Brixhe 1984, pp. 47–48, nos. 2.6.1–2.6.2.

¹¹ Laflı and Buora 2016 with previous literature.



Figure 31.2. A bread stamp with the expression of ΦΩΣ + ΖΩΙ in the Museum of Afyonkarahisar (by E. Lafu, 2005).

The cross motif indicates both the Christian and the chronological contexts of the stamp.¹² As Jesus said ‘I am the light of the world’,¹³ it is proper to the Gospel according to John (τὸ κατὰ Ἰωάννην εὐαγγέλιον in Greek) to indicate light as the true essence of divinity. The same formula appears on a gold cross from Caesarea Maritima in Israel, preserved in the Civico Museo Archeologico in Milan and dated to the sixth century AD.¹⁴ A very similar cross, made in bronze, is housed in the Byzantine and Christian Museum of Athens.¹⁵ Henry Leclercq reports a cruciform clip from Korbous in Tunisia with the same expression, to which he approaches another cross from Byblos.¹⁶ The inscription also appears on numerous rings in bronze or silver and even on textiles.¹⁷ According to Rev. Stanislao Loffreda, it is a very common formula that the Byzantines also used on terracotta oil lamps.¹⁸ Jesus said that his followers should have light and life, and in obedience to his statement Christian lamps were made with the inscription *phōs* and *zōē*.¹⁹ Paul the Apostle also said “you were once darkness and now you are light in the Lord”.²⁰ The association of *Phōs* and *Zōē* probably appears

in the Poimandres,²¹ a chapter in the *Corpus Hermeticum*, with the reference to the supreme Nous (mind of God; male-and-female) that generates in itself and then gives birth to a second *nous demiurge*, a term for a divine artisan responsible for the creation of the physical universe.

Numerous Byzantine bread stamps from Phrygia are known, and this previously unpublished stamp from Afyonkarahisar could be an indication of a monastic site in this part of Phrygia: beside the finds from Amorium, in the centre of Pepuza (fig. 31.1), the headquarters of the ancient Christian church of Montanism, a Byzantine terracotta bread stamp with a diam. of 7.5 cm and a moulded cross was found.²²

Notes and acknowledgements

This collection was studied with four authorisations granted by the Turkish Ministry of Culture and Tourism, Directorate of the Monuments and Museums on February 28, 2002 and enumerated as B.16.0.AMG.0.10.00.01/707.1–2 (002458), on June 5, 2002 and enumerated as B.16.0.AMG.0.10.00.01/707.1–2 (008638), on December 9, 2004 (for the year 2005) and enumerated as B.16.0.AMG.0.10.00.01/707.1/14 (030316) as well as on April 27, 2005 and enumerated as B.16.0.AMG.0.10.00.01/707.1(9)-54946. The necessary documentation was assembled during March 2002 and December 2005.

This paper is dedicated to Mr David Barchard, an expert on Turkey and an enthusiast of Byzantine archaeology, who died in York on 23 December 2020.

¹² Caseau 2014, p. 602.

¹³ John 8, 12.

¹⁴ Zastrow, De Meis and Cairoli 1975, p. 21.

¹⁵ Tsakos 2011, p. 166, fig. 3

¹⁶ Leclercq 1922, p. 1374, fig. 4343.

¹⁷ Cf. Tsakos 2011, p. 165.

¹⁸ Loffreda 1989, pp. 218–20; Loffreda 2003, p. 148; Mastrocinque 2007, p. 95; and Modrzewska-Marciniak 1983, p. 142, with reference to the wrong form of writing, influenced by the local language. Also cf. Loffreda 1995 and 1992.

¹⁹ Leclercq 1939, pp. 756–58. Heather Hunter-Crawley discusses the formula φως-ζωή, and explores the associations of the cross and light in the Christian *apocrypha* (e.g. the Acts of the Apostle John, where the Apostles are shown as ‘σταυρὸς ὁ τοῦ φωτός’ by Jesus), historiography, and literary sources (for example the vision of Constantine: σταυρὸς ἐκ φωτός ἐν οὐρανῷ = Eus. VC 1.28, etc.): Hunter-Crawley H. 2013, pp. 187 and 188–92.

²⁰ Eph. 5:8.

²¹ *Corp. Herm.*, I, 9: ‘the divine intellect, that is the supreme God, being of masculine and feminine nature, life and light at the same time....’.

²² Tabbernee and Lampe 2008, pp. 188–89, fig. 10, no. 39.

Part III
Bronzes from Neighbouring Regions

Scientific Investigation On a Copper-Based Pin from Köhn Pāsgāh Tepesi in the Province of Eastern Azerbaijan (Iran)

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Abstract: In this paper a copper-based pin found at the site of Köhné Pāsgāh Tepesi excavations has been investigated. This archaeological site is located between the villages of Máfrüzlü and Shoja'lu, and is part of the administrative district of Káleybár district, in Azerbaijan province, Iran. It is located on the southern bank of the Araxes valley in the Khodääfarin area. The site is one of several sites that will be submerged by the Khodääfarin dam project. The pin has been thoroughly examined in an attempt to find more about the elements used in the alloy's composition and the manufacturing methods of this object. The analytical methods used include ICP, SEM-EDX and metallography. According to the analytical data, an arsenic-copper alloy was used to make this object, with its arsenic content measuring about 3%. The metallographic studies showed banded microstructure evident chemical segregation, but also implied cold working used effectively to manufacture the pin.

Keywords: Ancient arsenical-copper alloy, ICP, SEM-EDS, Köhné Pāsgāh Hill, Araxes valley, Iran.

Özet – Doğu Azerbaycan Eyaleti'nde (İran) Köhn Pāsgāh Tepesi'nden Bakır Esaslı bir İğne Üzerinde Bilimsel Araştırma: Bu makalede Köhné Pāsgāh Tepesi kazılarında bulunan bakır içerikli bir iğne incelenmiştir. Bu arkeolojik yerleşim, Máfrüzlü ve Shoja'lu köylerinin arasında yer almaktadır ve İran'ın Doğu Azerbaycan eyaletindeki Káleybár şehrinin idari bölgesinin bir parçasıdır. Khodääfarin Bölgesi'ndeki Araxes vadisinin güney kıyısında yer almaktadır. Yerleşim, Khodääfarin baraj projesi tarafından sular altında kalacak olan birkaç alandan biridir. İğne, alaşımların bileşiminde kullanılan elementler ve bu nesnenin üretim yöntemleri hakkında daha fazla bilgi edinmek amacıyla kapsamlı bir şekilde incelenmiştir. Kullanılan analitik yöntemler ICP, SEM-EDX ve metalografiyi içerir. Analitik verilere göre, bu nesneyi yaklaşık % 3 oranında arsenik içeren bir arsenik-bakır alaşımı kullanmıştır. Metalografik çalışmalar, bantlanmış mikroyapıda belirgin kimyasal ayrışma olduğunun dışında, aynı zamanda iğneyi üretmek için etkili bir şekilde kullanılan soğuk işlemin yapıldığını da göstermiştir.

Anahtar Kelimeler: Antik arsenik-bakır alaşımı, ICP, SEM-EDS, Köhne Pasgah Tepesi, Araxes vadisi, İran.

Introduction

As a result of growing interest in the field of archaeology in Iran, a number of prehistoric sites have been uncovered during the second half of the 20th century, many of them yielding valuable information concerning ancient

metalworking in the Iranian plateau during several millennia BC.¹

Köhné Pāsgāh Tepesi is located between the villages of Máfrüzlü and Shoja'lu, within the Káleybár district, in

¹ Vatandoust 2004, pp. 2–7.

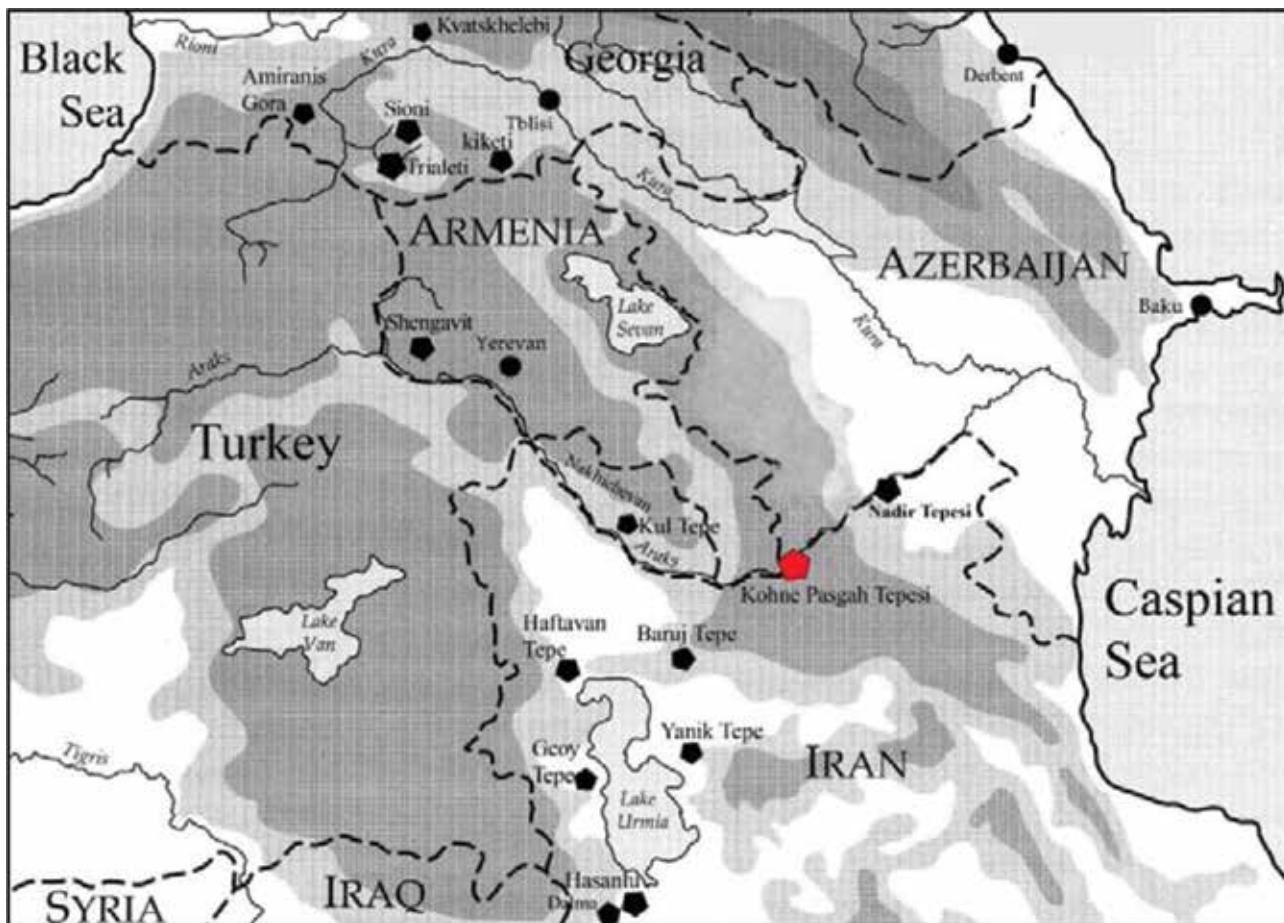


Figure 32.1. Location of Köhné Pāsgāh Tepesi in the province of eastern Azerbaijan (Iran) (by the authors, 2011).



Figure 32.2. Köhné Pāsgāh Tepesi (by the authors, 2011).

eastern Azerbaijan province, Iran. It is situated on the southern bank of the Araxes valley in the Khodāāfarin area (figs. 32.1-2). The site is one of several that will be submerged by the Khodāāfarin dam project.

Evidence suggests that the site was continually occupied from the Late Chalcolithic to the end of the Early Bronze Age.² Three bell shaped pits about 1 to 2 m. in diameter were found in Phase I of this site (Late Chalcolithic).

² Maziar 2010, pp. 165–93.



Figure 32.3. A Late Chalcolithic copper-based pin from Köhné Pāsgāh Tepesi (by the authors, 2011).

The pits were filled with ash and numerous pot sherds, fragmentary bones, broken animal figurines, and fragments of mud brick, along with a copper-based pin (fig. 32.3). Our scientific investigations of that pin serve as an introduction to archaeometallurgical studies of this region.

Materials and methods

The pin has been thoroughly examined in an attempt to find more about the elements used in the metal’s composition and the manufacturing method of this object. To study its chemical compositions and microstructures three complementary analytical methods were used: ICP, SEM-EDX and metallography.

Longitudinal and cross sections of the sample were mounted in epoxy resin and polished for metallographic analysis; samples were observed both before and after etching with aqueous ferric chloride solution (10g FeCl₃+30 ml HCl+120 ml H₂O). The microstructure of

the samples was studied by optical microscopy (OM) and scanning electron microscopy (SEM). Optical microscopy was carried out on a Japanese (OGAWA SEIKI) MR-11 microscope.

Energy Dispersive Spectroscopy (EDS), coupled with SEM, was used for localized compositional microanalyses. The SEM-EDX analyses were carried out on the VEGA II TESCAN, Czech Republic. EDS: Rontec, Quantax/QX2, Germany in Razi Metallurgical Research Centre, Tehran. Inductively Coupled Plasma (ICP) was used to determine the chemical composition of the sample, which was analyzed for elemental analysis of bulk by ICP-OES model Varian 735 in Zar Azma Co., Tehran. Care was taken to remove corrosion products from core metal.

Results – ICP Analysis

The ICP analysis results are presented in **table 32.1**. The results show that the pin is mainly arsenical copper with an arsenic content near 3%.

SEM-EDS Analysis

The SEM-EDS analyses have been done on metal core, inclusions (**fig. 32.4**) and corrosion products (**fig. 32.5**). SEM-EDS analysis showed exactly the same result as ICP for the metal core. Analyses of inclusions showed two completely different results. The bright inclusion

Table 32.1. Results of the ICP analysis showing the chemical composition of the pin (by the authors, 2011)

Element	Ag	As	Cu	Pb	Sb	Sn	Zn	Cr	Co	Ni
Unit	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	56.4	27771	96.4	29.3	1354	<2	6069	9.3	42.7	6.4



Figures 32.4. Back-scattered electron image of sound metal and inclusions (by the authors, 2011).

showed a much higher amount of Sb (*ca.* 50%) and As (*ca.* 8%) than the core metal, and the dark inclusion with some sulfur, antimony, and copper. In corrosion products analysis a large amount of silver was found embedded in the corrosion products (**table 32.2**).

Metallography

Metallographic investigations showed a banded microstructure aligned in the direction of the longitudinal section (**fig. 32.6**). This could be interpreted as evidence for chemical segregation or as elongation of the microstructure. In contrast, the microstructure seen in cross-section only showed chemical segregation (**fig. 32.7**). The chemical segregation shows the remains of the casting that remained after heavy working, carried out to achieve the final shape and strengthen the tip of the pin. It is often difficult to remove the segregation that occurs during the casting operation.³

Discussion

According to the results of ICP and SEM-EDS analyses, a copper-arsenic alloy was used to make this pin. The arsenic content ranges from 2% to 3%.

Table 32.2. SEM-EDS results showing the chemical composition of inclusions (by the authors, 2011)

Element (norm. C [wt%-%])	S	Cl	Cu	As	Sn	Sb	Ag
Zone F	-	0.00	14.03	8.05	0.00	50.92	-
Zone G	14.05	-	80.30	0.08	0.00	5.57	-
Zone H	-	-	5.41				94.59

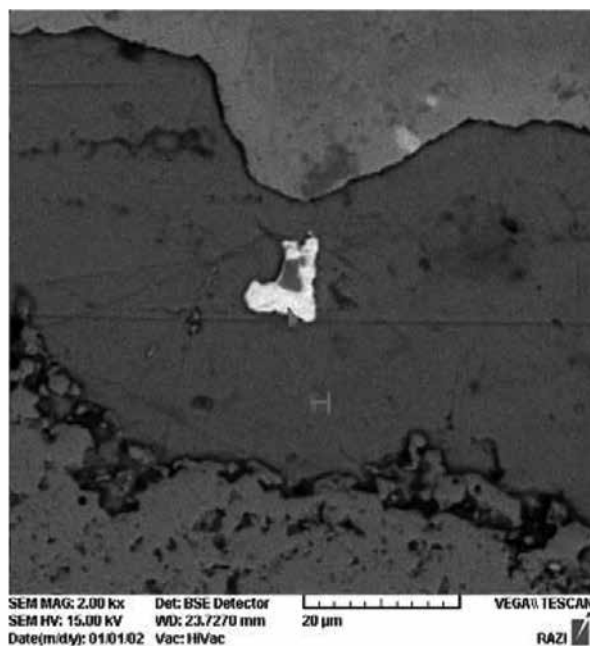


Figure 32.5. Back-scattered electron image of corrosion products (by the authors, 2011).

³ Scott 1991.

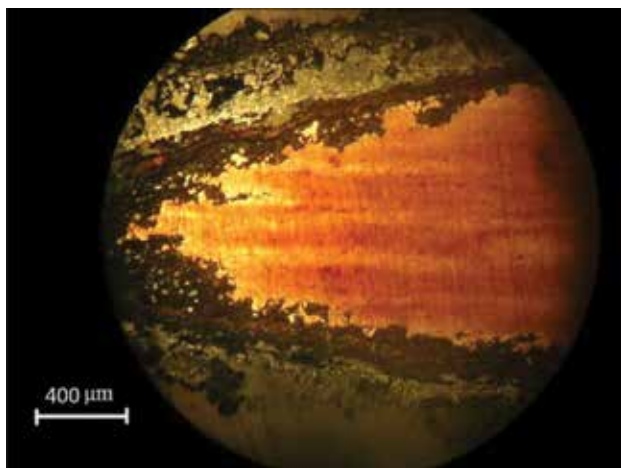


Figure 32.6. Optical micrograph. This banded microstructure, aligned in the direction of the longitudinal section, reflects chemical segregation in the original alloy 100X. (Etchant: aqueous ferric chloride) (by the authors, 2011).

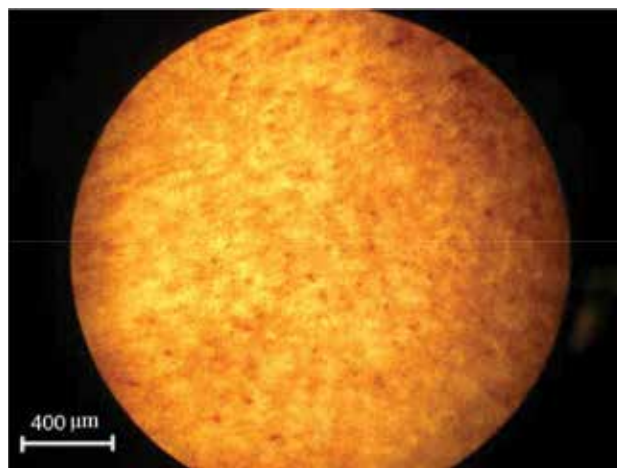


Figure 32.7. Optical micrograph. Microstructure in cross-section indicates chemical segregation 100X. (Etchant: aqueous ferric chloride) (by the authors, 2011).

The main alloy produced and used throughout the Near East and Europe during the Early and Middle Bronze Age was arsenical copper.⁴ In the late fifth millennium BC., arsenical copper replaced the local native copper tradition.⁵ Beginning in the late fifth and first half of the fourth millennium BC., people in this area employed arsenical copper for almost two millennia before bronze, the copper-tin alloy, became a significant competitor. Only in the Late Bronze Age did bronze replace arsenical copper in most of this area.⁶

The copper–arsenic alloys found in ancient artefacts could have been made easily, either deliberately or accidentally, by co-smelting procedures.⁷ Metalworkers in the ancient world may have known about arsenic-copper alloys and used alloys in the 0.5–3% range intentionally.⁸ Archaeometallurgists have suggested that copper alloys containing more than 1% arsenic would be intentional products.⁹ Properties of this alloy are different from those of pure copper. Compared with pure copper the copper-arsenic alloys offer some advantages in casting. With an increased amount of arsenic, the melting temperature of the metals decreases.¹⁰

Metals and alloys needed to be highly ductile/malleable, tough, and moderately strong. Therefore copper alone is not suitable because it is highly plastic, but it hardens very quickly by hammering it. Copper-arsenic alloys have better workability even at low arsenic concentration.¹¹ Copper alloys with about 2% to 6%

arsenic represent the optimal compositional range in terms of cold working and hardening. The increase of workability through cold working is one of the most highly investigated properties of copper-arsenic alloys. A content of up to 1% arsenic slightly increases the tensile strength, whereas the ductility of the material is not influenced. The tensile strength of the alloys increases with increasing arsenic content and extensive working.¹² Up to the solid solubility limit, with increasing arsenic concentrations the material becomes stronger with no sacrifice in ductility.¹³

The results of SEM-EDS analysis show silver metal embedded in the corrosion products. Such silver regions are common in ancient copper. The silver is due to the galvanic corrosion of silver and copper, and these high-silver areas are not representative of the original alloy composition.¹⁴

The metallographic evidence showing the banded structure and elongated inclusions indicates that hardening of the pin tip has been achieved. Some inclusions in the alloy contain antimony and lead and possibly refer to the copper minerals. According to the ICP results the antimony content is less than 1%, whereas SEM shows Sb higher than 5%. The manufacturing technology and the compositional structures of this object have close similarities to those of items from the contemporary sites in the vicinities, such as Godin Tepe in the west of Iran,¹⁵ Tekhut, and Kültepe I in Nakhchivan.¹⁶

⁴ Eaton 1976, pp. 169–91; as well as Lechtman 1999, pp. 477–514.

⁵ Eaton 1976, pp. 169–91; Lechtman 1996, pp. 497–526; as well as Lechtman 1996, pp. 477–514.

⁶ Thornton 2004, pp. 264–73.

⁷ Lechtman 1999, pp. 477–514.

⁸ Lechtman 1996, pp. 497–526; as well as Junk 2003.

⁹ Junk 2003.

¹⁰ Junk 2003.

¹¹ Lechtman 1996, pp. 497–526; as well as Junk 2003.

¹² Junk 2003.

¹³ Lechtman 1996, pp. 497–526.

¹⁴ Frame 2010, pp. 1700–15.

¹⁵ Frame 2010, pp. 1700–15.

¹⁶ Marro 2011, pp. 53–100.

Conclusions

Analysis of the copper-based pin found in the Köhné Pāsgāh Tepesi excavation in northwestern Iran, in eastern Azerbaijan province, shows that an arsenic-copper alloy with an arsenic content near 3% was used. The copper-arsenic alloy was in widespread use in this region from the early fourth millennium BC. to the Late Bronze Age and Köhné Pāsgāh Tepesi is no exception. Our metallographic studies also show chemical segregation, indicating that cold working was employed in the finishing of the object. Elements like antimony and lead possibly refer to ores. Silver in corrosion products is also common in ancient copper and results from the galvanic corrosion of silver and copper.

Analysis of Some Copper Alloy Artefacts from the Recent Excavations in Persepolis, Iran

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Abstract: Persepolis is one of the most famous archaeological site in Iran. It was established on the core of the ancient city of Parsa, which was a citadel of the Persian Empire during the Achaemenid dynasty about 550–330 BC. In 2009, an archaeological excavation carried out in the western part of Persepolis and various finds from Achaemenid period have been documented. These finds include architectural remains as well as metal and terracotta sherds. In this brief paper, five metallic pieces discovered in the recent excavations in the western part of Persepolis will be presented with an archaeometallurgical interpretation of their copper. Our analyses focused correspondingly to the characterisation of their alloy and manufacturing process. The microstructure of copper alloy is investigated by analytical as well as optical microscopic methods. Chemical composition of examples was characterized with scanning electron microscopy coupled to energy dispersive spectroscopy (SEM-EDS). According to chemical analysis, the metal pieces are produced as low tin copper alloy. Only in two samples tin content is higher than the other. It is also interesting to consider the low amount of lead in three samples. Presence of lead is important because the technology of lead extraction was not exactly recognised in Persepolis. The microstructure of samples is dissimilar and varied from casting to hammer worked microstructures. These investigations reveal some new aspects of the technology of copper and its alloys in the historical periods of Iran as well as some interpretation about the long term corrosion due to the burial environment.

Keywords: Metal pieces, copper alloy, SEM-EDS, archaeometry, Persepolis, Parsa, Iran.

Özet – İran-Persepolis’de Son Dönem Kazılarda Ele Geçen Bazı Bakır Alaşımı Eserlerin Arkeometrik Analizi: Persepolis, İran’ın en ünlü arkeolojik örenyerlerinden biridir. Persepolis Akhemenid Hanedanlığı (İ.Ö. 550–330) sırasında Pers İmparatorluğu’nun bir kalesi olan antik Parsa kentinin akropolünü temsil eder. 2009 yılında Persepolis’in terasının batı kesiminde arkeolojik bir kazı yapılmıştır ve bu kazılarda Parsa adlı Akhemenid kentine ait çeşitli buluntular ele geçmiştir. Bu buluntular, metal fragmanlar ve çanak çömlek gibi farklı eserlerin yanında mimari kalıntıları içermektedir. Bu kısa makalede, Persepolis platformunun batı kısmındaki son zamanlarda yapılan kazılardan keşfedilen beş metal parça, içerdikleri bakırın arkeometalürjisinin yorumlanması ile incelenmiştir. Bu arkeometrik analizler parçaların alaşım karakterizasyonu ve üretim yöntemlerine odaklanmıştır. Bakır alaşımının mikro yapısı, analitik ve optik mikroskopik yöntemlerle incelenmiştir. Numunelerin kimyasal bileşimi, enerji dağıtıcı spektroskopisine (SEM-EDS) bağlı taramalı elektron mikroskopisi ile tanımlanmıştır. Kimyasal analizlere göre, metal parçalar düşük kalaylı bakır alaşımı olarak üretilmektedir. Sadece iki örnekte kalay

içeriği diğerlerinden daha yüksektir. Üç örnekte düşük kurşun miktarının varlığı ilginçtir. Kurşun çıkarma teknolojisi, Persepolis'te tam olarak tanınmadığı için bu önemli bir bulgudur. Numunelerin mikro yapısı farklıdır ve dökümden çekikle işlenmiş mikro yapılara kadar çeşitlilik gösterir. Bu araştırma, İran'ın tarihsel sürecinde bakır ve alaşım teknolojisinin bazı yeni yönlerini ve toprak altı ortamdan kaynaklanan uzun vadeli korozyon hakkında bazı yeni bulguları ortaya koymaktadır.

Anahtar Kelimeler: Metal objeler, bakır alaşımı, SEM-EDS, arkeometri, Parsa, Persepolis, İran.

Introduction

It has been nearly 190 years since the beginning of archaeological activities at Persepolis. Undoubtedly these 19 decades of research at Persepolis, Pasargadae and Istakhr city brought many historically obscure points to light.¹ They also provided new methods for the development of researches in the field of cultural heritage. Since 1930, the architectural remains of Persepolis have been excavated or restored by several Iranian and international archaeological² teams which conclude the description of historical sources as well as archaeological surveys and topographical observations.³ The list of historians, archaeologists and voyagers⁴ who have contributed to our knowledge of this site include, among others, Odric from Pordenon in 1318, Don Garsias de Silva e Figuerora in 1667, James Murie and Robert Gordon in 1810–1876, W. H. Blondel in 1891, Ernst Herzfeld in 1924, Eric Schmidt in 1934, Hossein Ravanbod in 1939, Isa Behnam in 1940, Ali Sami in 1942–1961, Akbar Tajvidi in 1968–1973 and Parse Pasargadae Research Foundation from 2001 to the present (figs. 33.1–33.2).

The Oriental Institute of the University of Chicago under the direction of Professor Ernst Herzfeld undertook the first archaeological expedition, which started the excavations of the site directly. The results are published in several articles and in a book entitled *Iran in the Ancient East* by Herzfeld. The substitution of Professor Eric Schmidt, who was accompanied by an architect and an artist, focused on a restoration program. As a pioneer of excavation, Schmidt spent much more time on the archaeological excavation at the site and its surrounding area.⁵ These activities were continued by an Iranian archaeological team under the supervision of Tajvidi and Sami. In this period of excavation, some restorations using concrete were accomplished.

The investigations on this area developed till nowadays by a few scientists in different multi-disciplinary methods. The methodology of investigation of historical sites is a new approach in the field of analytical archaeology with collaboration due to the multidisciplinary methods.

As a matter of fact, the history of copper and copper alloys has been discussed in several excavation reports as well as investigated using chemical analysis.⁶

A recent archaeological research in Persepolis was carried out in October 2009 in cooperation between an Iranian-Italian joint team, under the supervision of Professor Pierfrancesco Callieri (University of Bologna, Italy) and Dr Alireza Asghari-Chaverdi (University of Shiraz, Iran). These excavations have not only focused on the archaeological point of view but also expanded our knowledge of metallurgy. At such important sites such as Persepolis and Pasargadae, in addition to excavation, intensive aerial survey, as well as metallurgical studies, provide important evidence for understanding the ancient technology of this area. According to archaeological excavations that have been carried out around Persepolis recently, several metallurgical remains have been revealed from the northeastern part of the site.

Until 2001, the entirety of metal object finds at the site were consisting of arrowheads, which were widespread along the feet of Rahmat Mountain, and some diffuse iron slags from the northern part of Persepolis. During the 2009 excavations, several metallic objects made of copper and copper alloy came to light. These pieces are completely corroded, and the patina of green copper carbonate on the surface was the first clue that they were bronzes. According to the metallurgical studies, they may contain necessary information about the metallurgical procedure and also long-term corrosion process in the soil. Investigations into these metallic objects were conducted through different scientific fields, namely through archaeological, metallurgical and conservation studies (fig. 33.3).⁷

Corrosion associated with soil and environmental and geological conditions surrounding the finds, can provide information about the objects' origins and the environment in which they were preserved. The microstructure of the objects may contain information about the composition of alloys.⁸ Many environmental effects prepare the process of copper or bronze corrosion, but the forming of a patina on the surface may be defined as an interaction of several elements.⁹ Microscopical investigations illustrate also the

¹ Herzfeld 1941, p. 3f; as well as Stronach 1978.

² Schmidt 1970, pp. 155–80.

³ Sumner 1971, pp. 154–80.

⁴ Morier 1818, pp. 68–89 ff.

⁵ Schmidt 1970, pp. 155–80; as well as Stronach 1978.

⁶ Thornton and Ehlers 2003, pp. 3–8.

⁷ Emami and Trettin 2010, pp. 181–89.

⁸ McNeil and Little 1992, pp. 355–66.

⁹ Scott 1990.



Figure 33.1. Persepolis in 1940. A view from the north (by the authors through the Archive of Parsa-Pasargadae Research Foundation).



Figure 33.2. Persepolis in 2006. A view from the north (by the authors through the Archive of Parsa-Pasargadae Research Foundation).

distribution of these elements in the texture of metallic objects which can be interpreted for technological notices.

Probe description

The objects studied here are also strongly corroded and the layering effect is clearly visible on the surface. In many cases, the metallic cores of the probes are also

visible. All of the samples show a defoliation structure parallel to the real surface of the internal metallic core. It demonstrated that weathering and corrosion cause an expansion effect of corrosion products which appeared accordingly as a layering structure. Indeed, extraordinary craftsmanship was applied in this region while the manufacturing process covered a wide range of varieties of materials.

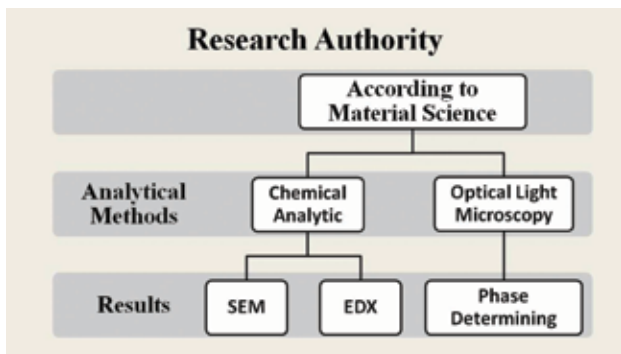


Figure 33.3. Schematic overview on the systematic research (by the authors, 2011).



Figure 33.4. Some of the investigated objects: nailhead, plate and spits (by the authors, 2011).

The probes are the remains of local copper production widespread in all excavated areas. Therefore, it is difficult to locate their findspots exactly, as subsequent agricultural activities disturbed the remnants of slags and copper objects. The main investigated material belong to those objects which were found during the excavation.

The examined objects consist of a nail head and other fragments which show corrossions. Products with corrossion are generally of copper (figs. 33.4a-d).

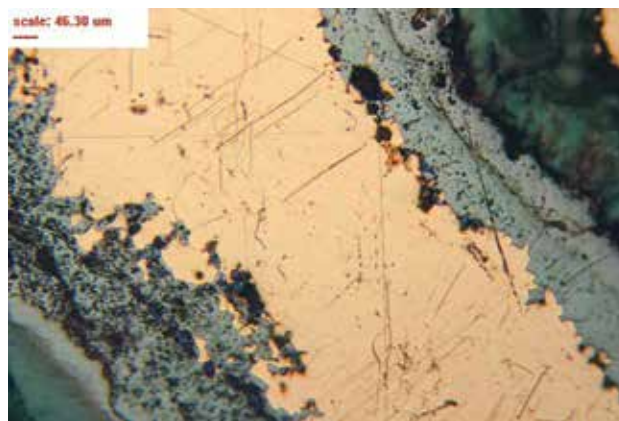


Figure 33.5. Tenorite with monocline structure and dark colour encrusted by cuprite in the dark field microscopy. PW778-20x-2pol-darck field (by the authors, 2011).

Results and discussion

Chemical analyses of the samples showed the different amount of Sn, As, Pb and Cu in the samples. In many cases, these portions of elements cause the difficulties by restoration. The low amount of as causes the reddish colour of the metallic core. As and Pb are the main elements which cause difficulties by the physical cleaning during the restoration. These elements are detected by SEM-EDX (point analysis) and also as crystalline phases which were studied by polarisation microscope. Sn appeared in different amount and is the main element in the bronzes, but its constituents are very variable. Sn concentrated in all part of the surface. The so-called ‘inverse segregation’ was not appeared in these samples. The point analyses of some samples are illustrated as follow: Some sulfides remain in the external layer of the metallic core and lead to identify the originally used ore for metallurgical evidence. Cuprite and tenorite are detected and well distinguishable according to their optical character (fig. 33.5). The existence of tenorite on the copper proved the high pureness of used copper in the objects due to the stability diagram of $\log_{Cu^{+2}} - pH$ (fig. 33.6). It proved also the carbonatic milieu of the excavation. Carbonatic milieu will be pointed up by the recreate of typically Liesgang structure, accordingly (fig. 33.7). Corrosion process occurred as intergranular corrosion which happened by the periodically dissolving of Sn that comes throughout of the internal core (fig. 33.8). Cu as α – phase and Sn as δ – phase appoache the dendritic structure. No Tin sweat effect is observed and the lead is in a lower amount than for getting bronze workability (fig. 33.9).

In the system Cu-As rich composition, it is necessary to have 960°C as smelting temperature at the eutectic point.¹⁰ In this case, the ore which used for smelting process should have been very Cu-rich composition, namely chalcocite.

¹⁰ Keesman and Moreno Onorato 1999.

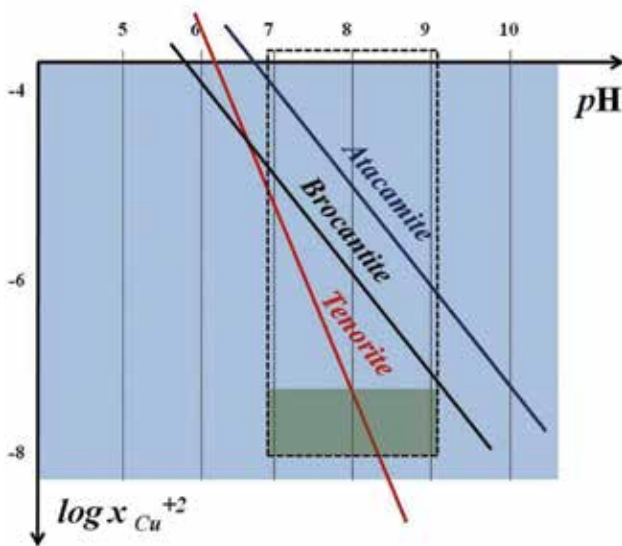


Figure 33.6. Stability diagram of $\log \text{Cu}^{+2} - \text{pH}$. It shows the purity of copper with respect to encrustation of corrosion products (by the authors, 2011).

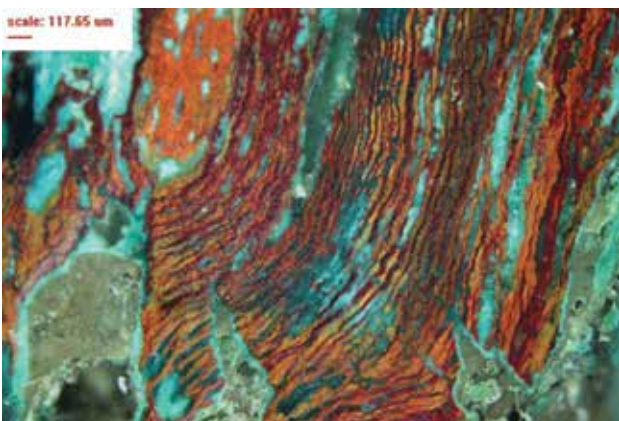


Figure 33.7. Liesegang formation under carbonatic milieu. PW769-40x-2pol-dark field (by the authors, 2011).

This point will be appointed by the diagram of the stability of copper composition due to percentage and temperature. Chalcocite is detected microscopically on some copper plates as well as slags which have been found in one of the trenches. Chalcocite in these samples has a bright blue colour and high anisotropic effect under a microscope (fig. 33.10).

Chalcocite seems to be a common copper mineral by the extraction of copper in this region. The enrichment of chalcocite is also found in hydrothermal copper orogeny near Persepolis called 'Jian'.¹¹ Throughout this metallogenic zone, the paragenesis of chalcocite-chalcopyrite outcropped overall.

The existence of domeykite (Cu_3As) which consist high amount of as and appeared as a pale blue phase in

¹¹ Emami and Yaghmai 2009, pp. 3–20.

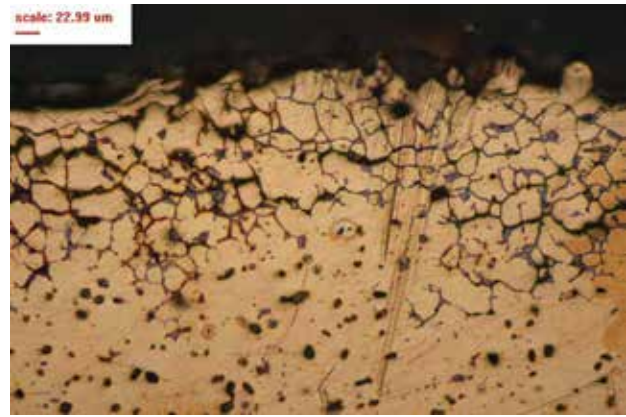


Figure 33.8. Corrosion effect due to migration of Sn to the exterior layer of the copper. PW938-10x-2pol (by the authors, 2011).

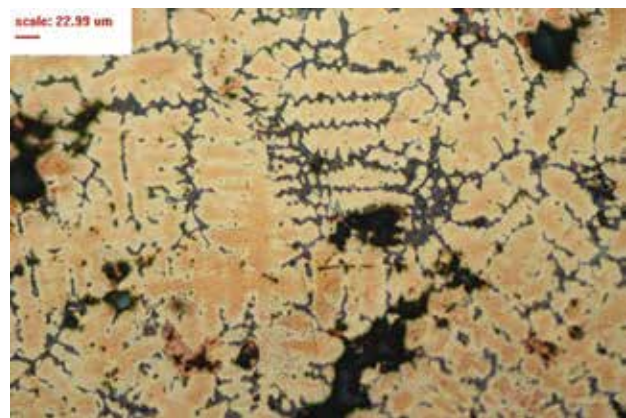


Figure 33.9. $\alpha\text{-Cu}$ and $\delta\text{-Sn}$ phases as dendritic texture by rapidly cooling of the alloy. PW749-10x-2pol (by the authors, 2011).

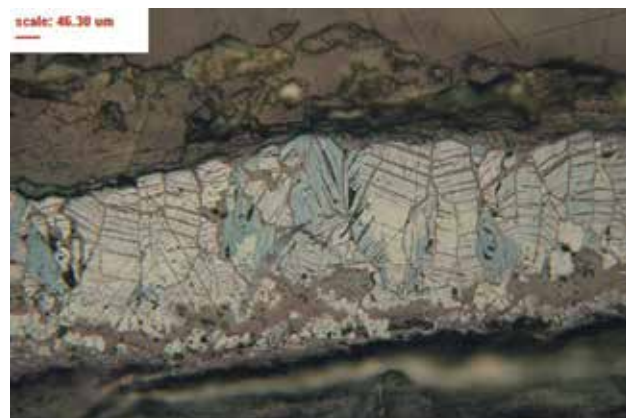


Figure 33.10. Chalcocite as raw copper sulphide used for metallurgical evidences. PW776-10x-2pol (by the authors, 2011).

the metallic core is discussable by two theories: Copper ores have contained high As amount and this occurred as domeykite in smelting process (accidental metallurgy). Alloying process; by exactly choosing the As rich ores.

As a matter of fact, the uncommon element that detected by this research was Lead (Pb). Pb took place in all around

the surface of the objects and could be only added through the alloying process as an external additive. Pb increase also the workability of the alloy after smelting by shaping or any another mechanical feature. On the other hand, lead is smooth and causes some trouble with mechanical cleaning as well. Adding a lead to the melt has been caused the selectivity, but the precise period of adding this mixture is unknown. Lead appears near the surface as tiny droplet which usually contains %66.90 Pb (sample 938).

Conclusion

Excavations at Persepolis have been carried out to determine the location of the ancient city Parse, which was probably built on the foundation of the great citadel of Persepolis. Throughout the excavation, different cultural and technological objects were found. These materials are mostly pottery, bricks, metals, bitumen and some metallurgical waste such as slag, kilns walls and accumulation of the refuse material after smelting.

It is noticeable that there are three groups of metallic artefacts in Persepolis. They differ from each other due to petrological well as chemical composition.

1. Sample with a high amount of lead.
2. Samples without lead.
3. Metallurgical remains of hydrothermal ore with respect to occurrences of common paragenesis of chalcocite – covellite.

Judging by the formation of tenorite and cuprite as the first corrosion layer on the metallic core, the copper that used for producing these objects had to be very pure. Due to the external delamination or layering, the detachment process affects the laminated oxide crust that corresponds to a physical separation into layers following the real surface of metallic core. It also can occur in the form of exfoliation that appears as multiple thin corrosion layers. This effect, called Liesegang, occurs after periodic accumulation of copper oxide and carbonate. Liesegang is also a criterion for the carbonatic milieu of the excavation zone.

The amount of Sn in the samples as the main alloying part seems to have a great chemical variation. For investigation on these varieties, more samples must be analysed to get more interpretable results. Lead was added after extraction for a better workability on the alloy. Due to its high gravity and density, the lead concentrated mainly around the external surface of the samples. The high amount of lead creates difficulty for conservation because lead oxide discolours the surface of objects. This might be similar to a patina under the corrosion layer and sometimes could be interpreted incorrectly as deposits on the surface.

The metallurgical process demonstrated copper casting and hammering that comes throughout the twinning structure on the texture of metals. The origin of copper

used in these objects are originally from chalcocite ore that has its source in the 'Jian copper mine' about 120 km away from Persepolis.

Bronze Objects of the Late Bronze Age and Iron Age from Luzzi and Bisignano in Calabria (Italy)

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Abstract: The territory of northern Calabria, central Crati Valley is an important northeast/southwest axis connecting northern Ionian Calabria (Sibaritide) to the Savuto Valley and the Tirrenian Coast (Temesa Area). Protohistoric habitation seems to be concentrated primarily during the first Iron Age; the main settlements are at Torano-Cozzo La Torre and Bisignano-Mastro d'Alfio, situated on the hills along the Crati River, controlling the narrow flood plain. Two small groups of bronze objects from Luzzi and Bisignano area will be explained in this article. Thanks to these artefacts with a very fine workmanship, it is possible to observe that, during the Iron Age, Bisignano, like all the Crati's valleys, was included in a general system of exchange and circulation of goods and ideas, as demonstrated by comparisons with objects from contexts in northern Calabria (above all Torre Mordillo and Macchiabate) but also with other sites in southern Italy and Sicily.

Keywords: *Fibula*, razor, pendant, axe, chisel, Bronze Age, Iron Age, Valle del Crati, southern Italy.

Özet – Calabria'daki (İtalya) Luzzi ve Bisignano'dan Geç Tunç Çağı ve Demir Çağı'na Ait Bronz Objeler: Kuzey Calabria Bölgesi'ndeki Orta Crati Vadisi, Kuzey İyonya Calabria'yı (Sibaritid) Savuto Vadisi ve Tirrenian Sahili'ne (Temesa Bölgesi) bağlayan önemli bir Kuzey/Doğu-Güney/Batı ekseninde yer alır. Protohistorik yerleşim yerinin ilk Demir Çağı'nda yoğunlaştığı görülmektedir; ana yerleşim yerleri, Crati Nehri boyunca uzanan tepelerde yer alan ve dar sel baskını kontrol eden Torano-Cozzo La Torre ve Bisignano-Mastro d'Alfio'da bulunmaktadır. Bu makalede, Luzzi ve Bisignano Bölgesi'nden iki küçük bronz nesne grubu açıklanacaktır. Çok iyi bir işçiliğe sahip bu eserler sayesinde, Demir Çağı boyunca, Kuzey Calabria'daki (her şeyden önce Torre Mordillo ve Macchiabate'deki) kontekslerden gelen objelerle, aynı zamanda güney İtalya ve Sicilya'daki diğer yerleşimlerle yapılan karşılaştırmalarla gösterilen Bisignano'nun, tüm Crati vadileri gibi, genel bir mal ve kültür dolaşım sistemine dahil edildiğini gözlemlemek mümkündür.

Anahtar Kelimeler: *Fibula*, ustura, kolye ucu, balta, keski, Bronz Çağı, Demir Çağı, Valle del Crati, Güney İtalya.

The territory of northern Calabria, the central valley of the Crati River, is an important north/east/south/west axis connecting northern Ionian Calabria (Sibaritide) to the Savuto Valley and the Tirrenian Coast (Temesa Area). Protohistoric habitation seems to be concentrated primarily during the first Iron Age; the main settlements are at Torano-Cozzo La Torre and Bisignano-Mastro d'Alfio, situated on the hills along the Crati River, controlling the narrow flood plain. We present here some unpublished bronze objects from the Bisignano area dating to the eighth century BC.

Some interesting bronze objects are stored in the town hall of Luzzi in northern Calabria,¹ in an 'antiquarium' licensed by the Soprintendenza per i Beni Archeologici della Calabria almost 15 years ago. The small display was successively enlarged during recent years to include protohistoric objects along with material from the Greek and Roman periods.

¹ La Marca 2002.

We present here two small groups of bronze objects² from Luzzi and Bisignano area; a complete catalogue of the antiquarium will be ready shortly.

The first group consists of an axe and a chisel, very well preserved, found by a local farmer during agricultural works at Verduro, in the municipality of Luzzi (fig. 34.1). The discoverer says these bronze objects were associated with several potsherds (probably in impasto), but he did not collect them.³

The second and larger group was found during the digging of a sand quarry in the foothills of Colle della Cittadella, close to Bisignano. Both groups of finds were delivered to the 'Associazione Culturale Insieme per Luzzi', a no-profit local association.⁴ Although without a stratigraphic context, the good condition of the artefacts and their typology allow for some general observations.

The bronze axe and chisel from Luzzi are both of fine workmanship. The axe (fig. 34.2) is of the so-called 'Cerchiara type', the most frequent of 'asce ad occhio' (axes with an eye-shaped hole for the handle).⁵ This type is very well known in Calabria and Sicily from the Late Bronze Age into the Iron Age. The 'Cerchiara Type' is named after a hoard near Cerchiara in northern Calabria. The discovery can be dated to the end of the Late Bronze Age (BF3, following the Italian terminology).⁶ 'Ad occhio' axes, however, are known also during the beginning of the Iron Age (IFe1).⁷ For this shape many parallels are known; in Calabria the hoard from S. Elia (in Cirò area) has six axes, dating between the end of the Bronze Age and the beginning of Iron Age;⁸ two examples stored at Museo Archeologico Provinciale in Catanzaro⁹ and two more¹⁰ from an unknown place in the Cosenza district.¹¹

In Sibaris (?) we know two 'asce ad occhio' from the *necropolis* of Torre del Mordillo; one in bronze¹² and one in iron.¹³ Two other parallels are known from Sant'Arcangelo (Potenza) and Montescaglioso (Matera).¹⁴

The chisel (fig. 34.3) has a 'fermo ad anello' and a close parallel can be drawn with a chisel from Mottola, in the Murge hills (Tarentum district).¹⁵ This object is dated to the end of the Late Bronze Age (BF3).¹⁶ The axe and the chisel do not show signs of wear, and were probably never used. This peculiarity allows us to suggest that both were part of a hoard: this was a popular practice in Italy during the Late Bronze Age.¹⁷ In general, 'The hypothesis was formulated from many sides that these closets had or a premonetal meaning, that is, that the axes that made them up, alongside and before their use value, were bearers of an exchange value; in short, regardless of and upstream of their practical use, which will always have been the norm, they also circulated with the function of a medium of exchange.'¹⁸

As we will see, the importance of Media Valle del Crati is known in the Iron Age but is almost unknown in the Late Bronze Age. However, in the British Museum, there is a sword 'a lingua da presa con prolungamento apicale' from Bisignano, dating to this period (fig. 34.4). The sword was purchased by the museum in 1908 with other objects. This artefact is a masterpiece, with parallels known from northern and central Italy.¹⁹ During archaeological surveys in Serra Cavallo d'Oro (Santa Sofia d'Epiro municipality²⁰) and close to the present day Tarsia,²¹ impasto potsherds dating between the Middle and Late Bronze Age were found.

The presence of the above-described axe and chisel suggests a gap in data for the Late Bronze Age in Media Valle del Crati: systematic investigations have never been carried out. Bronze objects from Bisignano (figs. 34.5-34.6) show several parallels with materials above all from Sibaris and Calabria but also from other areas of southern Italy and Sicily.

The first object is an incomplete *fibula* 'serpeggiante meridionale ad occhio' (fig. 34.5a) close to Type 343 of the Lo Schiavo classification.²² This type is widespread in Calabria, where 150 specimens are known. An example was found in San Vito di Luzzi.²³ Most of these *fibulae* are from Torre Mordillo (86 examples); rarely are they attested from Torre Galli²⁴ and Sant'Onofrio²⁵ (in southern Calabria).

² A special thanks goes to Mrs Cinzia Morlando for the drawings.

³ The farmer reported a second axe found in the same area but which later disappeared.

⁴ Frasca mentioned these objects but he did not published imagines: Frasca 2002, p. 62.

⁵ Carancini 1979, pp. 631-41.

⁶ Carancini 1979, p. 638, fig. 3, no. 49.

⁷ Carancini 1979, p. 639, fig. 4, nos. 71, 73 and 75.

⁸ Medaglia 2010, p. 125, fig. 78, no. 29 with bibliography.

⁹ Topa 1927, pp. 152-53, fig. 34. Topa was familiar with the wide spread of 'asce ad occhio' all around Calabria; he recorded examples stored in Catanzaro, in Reggio and in Crotona. One of the objects mentioned by Topa was found in the Cricchi district at the end of 19th century and published by Giuseppe Foderaro. The writer described the artefact observing that 'il taglio n'è molto affilato e tutto il pezzo è ben conservato' (Foderaro 1882, p. 99, pl. 4).

¹⁰ Bartoloni *et al.* 1980, p. 105, pl. 104, no. 10 (with further references).

¹¹ Bartoloni *et al.* 1980, p. 105, pl. 105, no. 10 (with further references).

¹² The object, showing a slightly different shape, is now exposed in the Civic Museum of Cosenza (Museo dei Bretti e degli Enotri). Curators suggest in the exposed panels a chronology between 1.200 and 960 BC.

¹³ Buffa 1994, p. 738, fig. 154, no. 8.

¹⁴ Kilian 1970, p. 389, pl. 269, nos. 8-9.

¹⁵ Müller-Karpe 1959, pl. 32, no. B 1.

¹⁶ Carancini 1979, p. 638, fig. 3, no. 51; as well as Bartoloni *et al.* 1980, p. 104, pl. 95, no. 3.

¹⁷ Carancini 1980. 'During the tenth and ninth century BC. In the period between the Late Bronze Age and the Early Iron Age, closets of intact bronze objects, composed exclusively or almost of axes, among which the eye-shaped, similar to modern shutters; as well as Peroni 1987, pp. 108-109.

¹⁸ Peroni 1987, p. 109; as well as Carrara Jacoli 1994b, pp. 772-73.

¹⁹ Giardino 1994, pp. 779-82, fig. 167, no. 1.

²⁰ Carrara Jacoli 1994b, pp. 772-73.

²¹ Carrara Jacoli 1994a, pp. 770-72.

²² Lo Schiavo 2008, pp. 18-19, fig. 4, nos. 4-11.

²³ La Marca 1991, p. 9, pl. 2, fig. 1.

²⁴ Pacciarelli 1999a, p. 133, Type Oe 1.

²⁵ Pacciarelli 1999b, p. 44, fig. 39, 64 ep. 49, fig. 44, 108.



Figure 34.1. Map of Media Valle del Crati showing the places where objects were found (by the authors, 2011).

The type is also documented in Sicily (25 examples), Basilicata (32),²⁶ Apulia (13) and Campania (12 examples, 8 from Sala Consilina).²⁷ It is probable that the origin

of this type was probably somewhere between northern Calabria and the Lucan area.²⁸

²⁶ Several examples are known from Santa Maria d'Anglona.

²⁷ For Sala Consilina evidence: De La Genière 1968; Kilian 1970; and also Ruby 1995.

²⁸ For all the presences until 2008: Lo Schiavo 2008, p. 44, fig. 6.

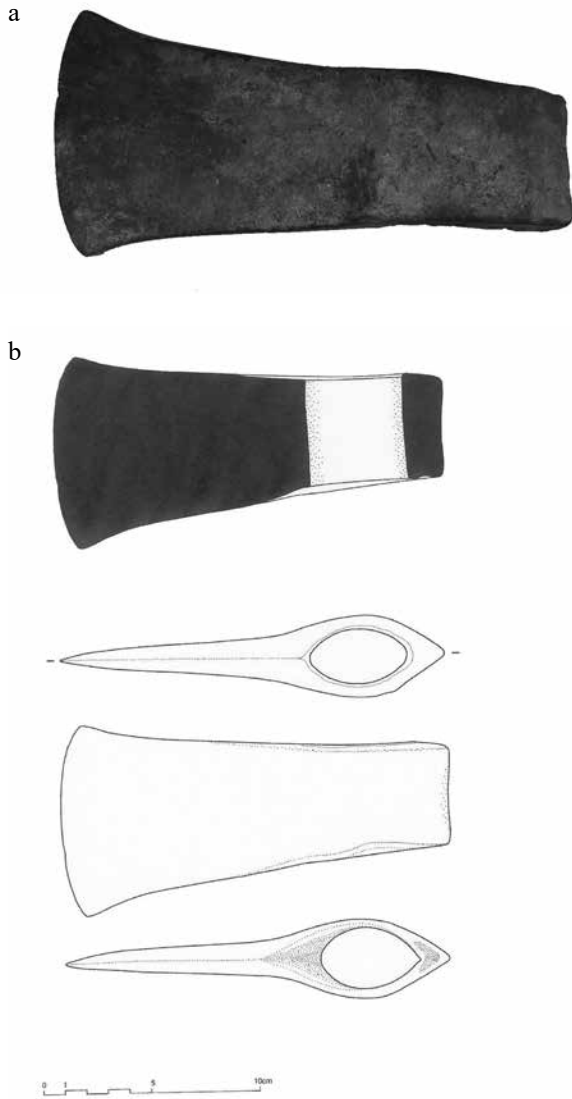


Figure 34.2a-b. An axe from Luzzi (by the authors, 2011).

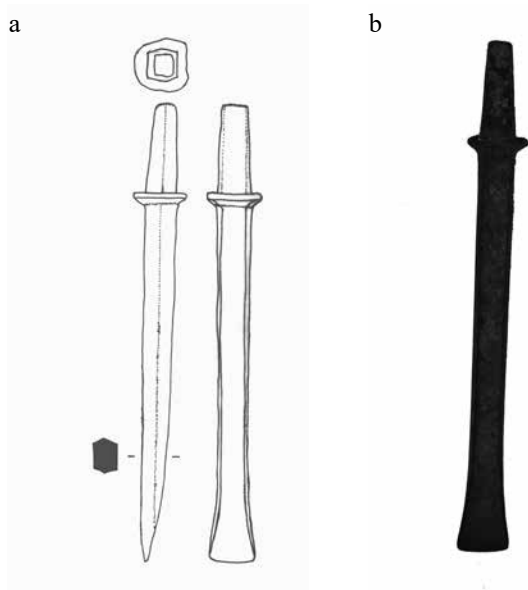


Figure 34.3a-b. A chisel from Luzzi (by the authors, 2011).

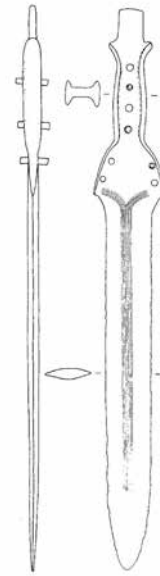


Figure 34.4. A sword from Bisignano in the British Museum (after Giardino 1994; by the authors, 2011).

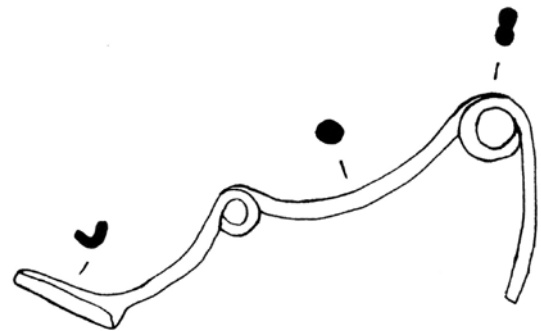


Figure 34.5a. A fibula 'ad arco serpeggiante' from Bisignano (by C. Colelli, 2011).

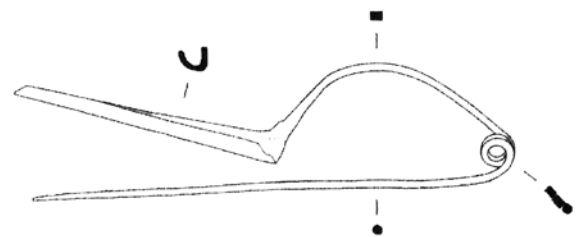


Figure 34.5b. A fibula 'ad arco semicircolare e staffa lunga' from Bisignano (by the authors, 2011).

Fibulae 'serpeggianti ad occhio' are well attested in earlier Macchiabate graves in Francavilla Marittima.²⁹ The type is known in the Chiane of Serra d'Aiello (CS) *Necropolis* as demonstrated by ten examples from graves 6, 9 e

²⁹ Quondam 2009, p. 141.

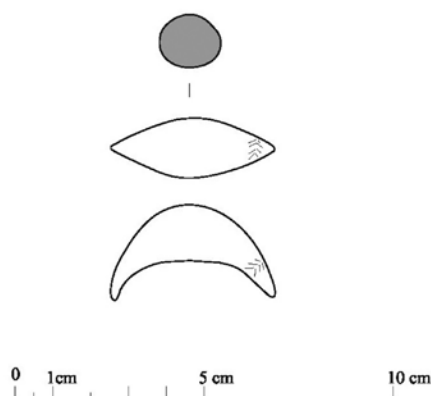


Figure 34.5c. A ‘Sanguisuga’ *fibula* from Bisignano (by the authors, 2011).

26.³⁰ Along the Ionian coast, there are several examples from Bucita of Rossano³¹ but the type also spread up to Croniatide.³²

From the parallels and the discovery contexts, it is possible to conclude that these buckles were produced from the beginning of IFe1B and became more common in subsequent IFe2A³³ graves. Recently excavated examples in Serra d’Aiello ‘are part of a nucleus entirely referable to the second phase of the Early Iron Age and therefore can be placed within the first half, even quite advanced, of the eighth century BC.’³⁴ and seem to confirm this chronology.

The ‘*fibula ad arco semicircolare e staffa lunga*’ (fig. 34.5b) belongs to a shape well documented in southern Italy and Sicily. They vary in size; the example from Bisignano (L.: 11.0 cm) is one of the larger ones. Closer parallels refer again to Sibaris and the Macchiabate *necropolis*, where this *fibula* appears in graves dating to the second half of the eighth century BC.³⁵ Parallels are also found for the types of ‘a scudetto’ (or ‘rhomboidal’) *fibula* (fig. 34.5c) and ‘*sanguisuga fibula*’ (fig. 34.5c).

The ‘a scudetto *fibula*’ is decorated with five narrow incised lines all around the perimeter of the object spaced by small oblique ridges. This type is attested almost exclusively in the Sibarite. The one from Bisignano shows generic

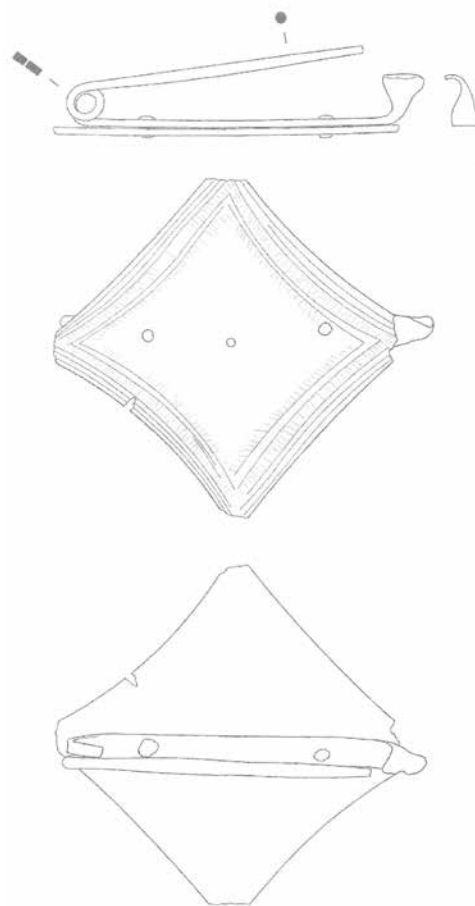


Figure 34.5d. A ‘Scudetto’ *fibula* from Bisignano (by the authors, 2011).

parallels (similar shape but different decoration) with examples (in bronze and in iron as well) from Francavilla and Torre Mordillo, but also from Torano (Tomb B1) and from Prunetta in Roggiano Gravina (tomb 4); some of these *fibulae* are known in Sicily from the Syracuse area and from Centuripe (Enna).³⁶ The type seems to start in the IFe2A and continue through the IFe2B.³⁷

The ‘*sanguisuga*’-type *fibulae* are popular in Francavilla Marittima, Santa Maria d’Anglona, and Sala Consilina, where several parallels for our example are known. The hoard is completed by a razor and a large pendant. The razor (fig. 34.6a) pertains to the ‘bitagliente a lama larga’ type, common in southern Italy during the Early Iron Age. The nozzle (short and fixed by a single pivot and folded loop) and the small circular hole in the middle are characteristic features; they allow a direct parallel with a razor from Tomb 125 in Torre Mordillo.³⁸ More parallels

³⁰ Two examples come from T.6, five from T.9, three from T.26 (La Rocca 2009, pp. 62–63 and 68, figs. 20–22, 28–29 and 61–62).

³¹ From this site several examples are known (Frasca and Taliano Grasso 1994, pp. 53–72). The example no. 14 in the catalogue is very close to the one from Bisignano. In recent surveys two extra examples were found: Brocata and Taliano Grasso 2011, p. 156.

³² See e.g. a decorated *fibula* from: Marino 2005, pp. 451–52, fig. 3, no. 3.

³³ Lo Schiavo 2008, p. 19. The second half of ninth/first half of eighth century AD in absolute chronology.

³⁴ La Rocca 2009, p. 74.

³⁵ In Quondam typology the object can be attributed to type 1/18, dating IFe2B2. For a list of presences with bibliography: Quondam 2009, p. 148, N. 143. For parallels see three examples from Tomb 88 of Macchiabate: Lo Schiavo 1984a, p. 125, fig. 43, nos. 31–33 and pl. 67, nos. 5–6 and another one from Timpone della Motta di Francavilla: Lo Schiavo 1984b, pp. 132–33, fig. 44.

³⁶ About this type: Quondam 2009, p. 149, fig. 1, no. 11 with bibliography.

³⁷ Quondam 2009, p. 149, fig. 1.

³⁸ About this razor (‘*rasoio bitagliente Tipo Torre Mordillo*’) see Bianco Peroni typology: Bianco Peroni 1979, p. 40, pl. 17, no. 196. For other parallels: Bartoloni *et al.* 1980, pp. 103–104, fig. 90 with bibliography; about Sala Consilina: Kilian 1970, p. 345, pl. 62, 4, 5, and p. 356, pl. 116, 1, 7; and Ruby 1995, p. 285, pl. 34, no. 12. We can add on the

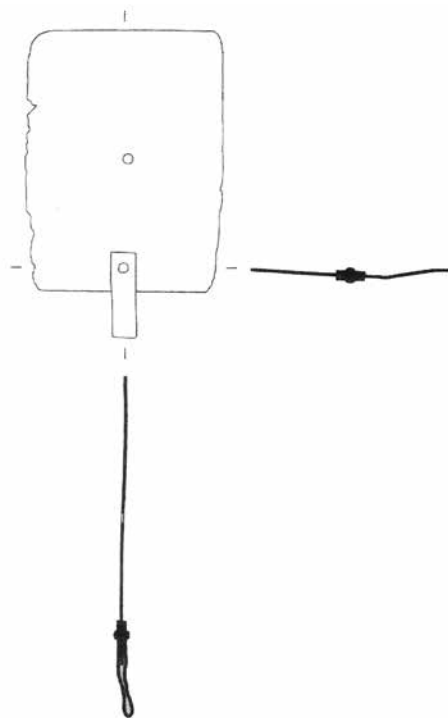


Figure 34.6a. A razor from Bisignano (by the authors, 2011).

are known from other places in southern Italy and Sicily.³⁹ All examples date between the mid-ninth century (or a few decades later) and the mid-eighth century BC.

The pendant (diam. 14.8 cm, wg. 160 g), consists of six concentric circles held together by four rays in a crossed shape (fig. 34.6a). It belongs to a type relatively popular with parallels in many cemeteries. Several are known in central and northern Calabria, but generally, they are smaller and with a different number of circles. Parallels are known from Tomb CI in Torre Mordillo,⁴⁰ from Chiante di Serra d’Aiello *necropolis*⁴¹ and probably from Tiriolo.⁴² We know smaller pendants from Macchiabate (e.g. the ones from Tombs 57 and 86),⁴³ from Tomb 6 in Chiante di Serra d’Aiello,⁴⁴ from Bucita of Rossano⁴⁵ and from Ferrandina;⁴⁶ another small example was found in the first

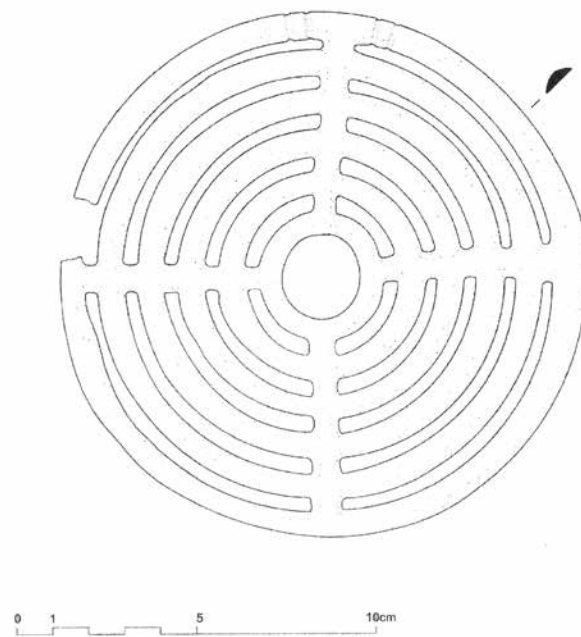


Figure 34.6b. A pendant from Bisignano (by the authors, 2011).

years of the last century at Cyme,⁴⁷ and two more come from graves 4 and 18 of San Marzano del Sarno (in the Campania region).⁴⁸ In Torano there is a pendant with seven circles with smaller diameters (almost 10 cm)⁴⁹ than the one from Bisignano. The dimensions and weight of our pendant suggest a ritual use (even if it is probably the ornament of a living person) rather than a practical function.

The razor was surely part of a male burial.⁵⁰ The absence of any context makes it impossible to say more.⁵¹ All parallels (above all from Torre Mordillo, Macchiabate in Francavilla and Serra D’Aiello) indicate that the artefacts from Bisignano should be dated between the late ninth and the eighth century BC. (IFe1B-IFe2B). This phase is probably already attested in Bisignano: in Mastrodalfio (a few hundred meters away from Colle della Cittadella) there is a *necropolis* dating to IFe1, but the so-called ‘Tomba Guzzo’, dating to the IB phase of the Iron Age, could move down to the 2A phase.⁵² Discovering this small group of objects confirms the importance of

list an example from Cirò Superiore, Sant’Elia currently exposed in the National Archaeological Museum of Crotona.

³⁹ Parallels are known from northern Calabria (Torre Mordillo and Castiglione di Paludi), Apulia (Arpi, Altamura), Campania (Sala Consilina and Suessula) and Sicily (Monte Finocchito and Adrano). For the widespread of this type: Bianco Peroni 1979, pp. 40–41, tab. 116. More generic parallels are documented from Torre Galli: Pacciarelli 1999. We should also mention a very close parallel with an example from Larino in Molise region: Di Niro 1991, p. 44, tab. 3b, no. b 58.

⁴⁰ Pasqui 1988, p. 578.

⁴¹ La Rocca 2009, p. 68, fig. 67.

⁴² It is not known exactly where this object comes from. (today in the private ‘Collezione Sanseverino’): Lo Schiavo 2008, p. 27, fig. 13, no. 6 (for hypothesis on the discovery pp. 10–11).

⁴³ Zancani Montuoro 1984, p. 14, tab. 5, no. 8, and p. 98, tab. 63, a.

⁴⁴ La Rocca 2009, p. 68, figs. 68–69.

⁴⁵ Frasca and Taliano Grasso 1994, pp. 62–63, no. 65.

⁴⁶ Lo Porto 1969, pp. 121–70, fig. 58, no. 4; Bartoloni *et al.* 1980, p. 102, pl. 81, no. 12.

⁴⁷ Dall’Osso 1906, p. 50, fig. 5.

⁴⁸ D’Agostino 1970, pp. 585–87, fig. 6, no. 12, and fig. 18 no. 6 with further references.

⁴⁹ De La Geniere 1968, p. 83, pl. 64, no. 2.

⁵⁰ The razor is an instrument related to the male sphere: it is a ‘beard care tool’; its relevance to the male funeral outfit is a constant throughout the European continent and is also confirmed in the Italian specimens of the final bronze of the Early Iron Age: Bianco Peroni 1979, pp. 177–78.

⁵¹ We can not exclude these metal objects was associated with other material such as pottery or amber. In theory, also the presence of glass jewellery is possible but this material is not attested in Bisignano, nor in Crati valley. For a distribution map in Calabria: Brocato and Muscetta 2012.

⁵² Luppino *et al.* 2004, pp. 530–31.

Bisignano during the Iron Age; the area southwest of the modern town shows a particularly strong archaeological record. As the scholar Cirelli wrote when an old cemetery was found in 1829: *‘urne cinerarie o vero vasi mortuari di diversa grandezza con ossa coperte e lucerne’* were dug in *‘contrada Mastroraffo (or Mastrodalfio)’*.⁵³ Iron Age materials are also documented from La Guardia and Colle San Leonardo.

Despite the absence of regular excavations, a relatively large *necropolis* is known from Mastrodalfio-Pietà; a settlement was located between San Leonardo and La Guardia. In a place called *‘Acqua del Fico’*, a small *‘necropolis ad incinerazione’* (cremation *necropolis*) has been discovered.⁵⁴

The *‘sistema insediativo’* in the Bisignano district (more than 15 hectares)⁵⁵ was quite complex; together with Cozzo la Torre di Torano (a few km to the west, on the opposite side of the Crati valley), and the site played an important role in the control of the river route. This area was very important because it represented the main road in inner northern Calabria, a significant crossing point on the axis connecting the northern Ionian coast (Sibaritide) to the Savuto river valley then to the Tirrenian shore (Temesa district).⁵⁶

To conclude, it is possible to observe that, during the Iron Age, Bisignano, like all the Crati’s valleys, was included in a general system of exchange and circulation of goods and ideas, as demonstrated by comparisons with objects from contexts in northern Calabria (above all Torre Mordillo and Macchiabate) but also with other sites in southern Italy and Sicily (fig. 34.7).

Metal production⁵⁷ is not the only support for this theory; there is also the pottery data from Torano⁵⁸ and Bisignano.⁵⁹



Figure 34.7. Places in Italy referred to in the text (by the authors, 2011).

Archaeometrical analysis carried out on a large dolia fragment made with coarse clay, found in Broglio di Trebisacce (north Sibaritide), demonstrated production in the Bisignano area.⁶⁰

⁵³ We know from Cirelli (for him according to *Alphius Hor. epo. 2*) the earlier name should be Mastro Dalfio already documented in 1269. The same writer reports in the area *‘vi furono dissotterrati diversi sepolcreti’*: Cirelli 1856, p. 34. For some of them, it is impossible now to understand a chronology, other ones generically date to Greco-Roman period.

⁵⁴ About Iron Age in Bisignano: Luppino *et al.* 2004, with special attention to pp. 25–29 for a schema of archaeological records in the area and for a general synthesis.

⁵⁵ Luppino *et al.* 2004, p. 529.

⁵⁶ About Temesa: La Torre 2009, pp. 9–38.

⁵⁷ We mention here the presence of pendants with the anthropomorphic couple so popular in Ionian Calabria and Sicily. About these singular objects: Brocato and Taliano Grasso 2011, pp. 147–59.

⁵⁸ Few graves are published from this site; in a general way, there are many bronze and iron objects and few pottery artefacts. However, in *Necropolis* of Torano jar necks are documented with shapes common in the whole Sibaritide; strange is the presence of two fragmentary dipper cups with oblique ribs on the body: De La Geniere 1977, p. 397, fig. 11, nos. 4–5. We know only another example from Sibaritide (the *Necropolis* of Torre Mordillo on display in the Brettii Museum, p. 41, fig. below), of this decoration common in Campania, Lazio and southern Calabria.

⁵⁹ Luppino *et al.* 2004, p. 536. From both the sites we do not record the presence of the so called *‘matt painted’*, pottery an indigenous painted ware typical in Apulia, Basilicata, and northern Calabria panorama: Yntema 1990; documented also in Crotona area and southern in the Gulf of Squillace: Aisa and Nicoletti 2004, pp. 856–57, fig. 2. The absence of this production in Media Valle del Crati could maybe be not accidental because this group is rare in the inland-southern Sibaritide. Torre Mordillo, seems to be the limit of the south-west widespread: from

Prunetta in Roggiano we know only one pot, an stemmed jug, from Tomb 4: Carrara and Guzzo 1981, p. 473, fig. 4, no. 6. Finally, I would like record the absence of matt painted from Tyrrhenian sites such as Temesa (La Rocca 2009) as well as Torre Galli (Pacciarelli 1999a).

⁶⁰ Levi *et al.* 1999, pp. 107–108.

***Fibulae* with Representations of Deer, Ibex and Horse from Georgia**

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Abstract: This paper deals with bow-shaped pin *fibulae* with high-relief representations of deer, ibex, and horse, made of bronze and silver and provided with a fastener on the backside. These artefacts are characteristic of Georgia's foothill and mountainous zone, but their greatest no. comes from burial grounds of the river Aragvi valley (Nedzikhi, Badrianebi, Tsipranisdziri, Zhinvali), and are dated to the third to fourth century AD. Solar signs are often applied, pointing to the divine features of the animal and links with religious ritual, but when these are on the front, they have the function of adornment. *Fibulae* of the third and fourth century AD with zoomorphic representations are related to earlier periods. The so-called 'Caucasian animal style', reaching the height of its development in the eighth/seventh century BC. had a great impact on the further development of Georgian art. At the same time, it is obvious that the existence of these representations over a long period time points to the presence of a single phenomenon fed by a single system and ideology of beliefs and notions; its refinement and perfection continued through the first millennium BC. in the ethnocultural environment.

Keywords: Animal-image *fibulae*, bronze, silver, Late Bronze Age, Georgia.

Özet – Gürcistan'dan Geyik, Dağ Keçisi ve At Temsilleriyle *Fibulalar*: Bu makalenin konusu bronz ve gümüşten yapılmış ve arka tarafında bir kanca ile tutturulmuş, yüksek kabartma tekniğinde geyik, dağ keçisi ve at betimlemeleriyle süslü yay şeklindeki *fibulalar*dır. Bu eserler, Gürcistan'ın eteklerinde ve dağlık bölgelerinin karakteristik özelliklerine sahiptir, ancak en yoğun buluntu Aragvi nehri vadisinin (Nedzikhi, Badrianebi, Tsipranisdziri, Zhinvali) gömülerinden gelir ve İ.S. 3. ve 4. yy.'lara tarihlenir. Hayvanın ilahi özelliklerine işaret eden ve dini ritüel ile bağ kuran güneş işaretleri genellikle sık sık uygulanır, ancak bunlar öndeyken süsleme işlevine sahiptirler. Zoomorfik bezemeli İ.S. 3. ve 4. yy.'a ait *fibulalar* daha erken dönemlerle ilişkilidir. İ.Ö. 8.-7. yüzyıllarda gelişiminin doruklarına ulaşan 'Kafkas hayvan stili', Gürcü sanatının daha da gelişmesinde büyük etki yaratmıştır. Aynı zamanda, uzun süre boyunca bu temsillerin varlığı tek bir sistem, inanç ve kavramlar ideolojisi tarafından beslenen tek bir olgunun varlığına işaret ettiği açıktır; onun inceliği ve mükemmelliği etnokültürel ortamda İ.Ö. 1. binyıl boyunca devam etmiştir.

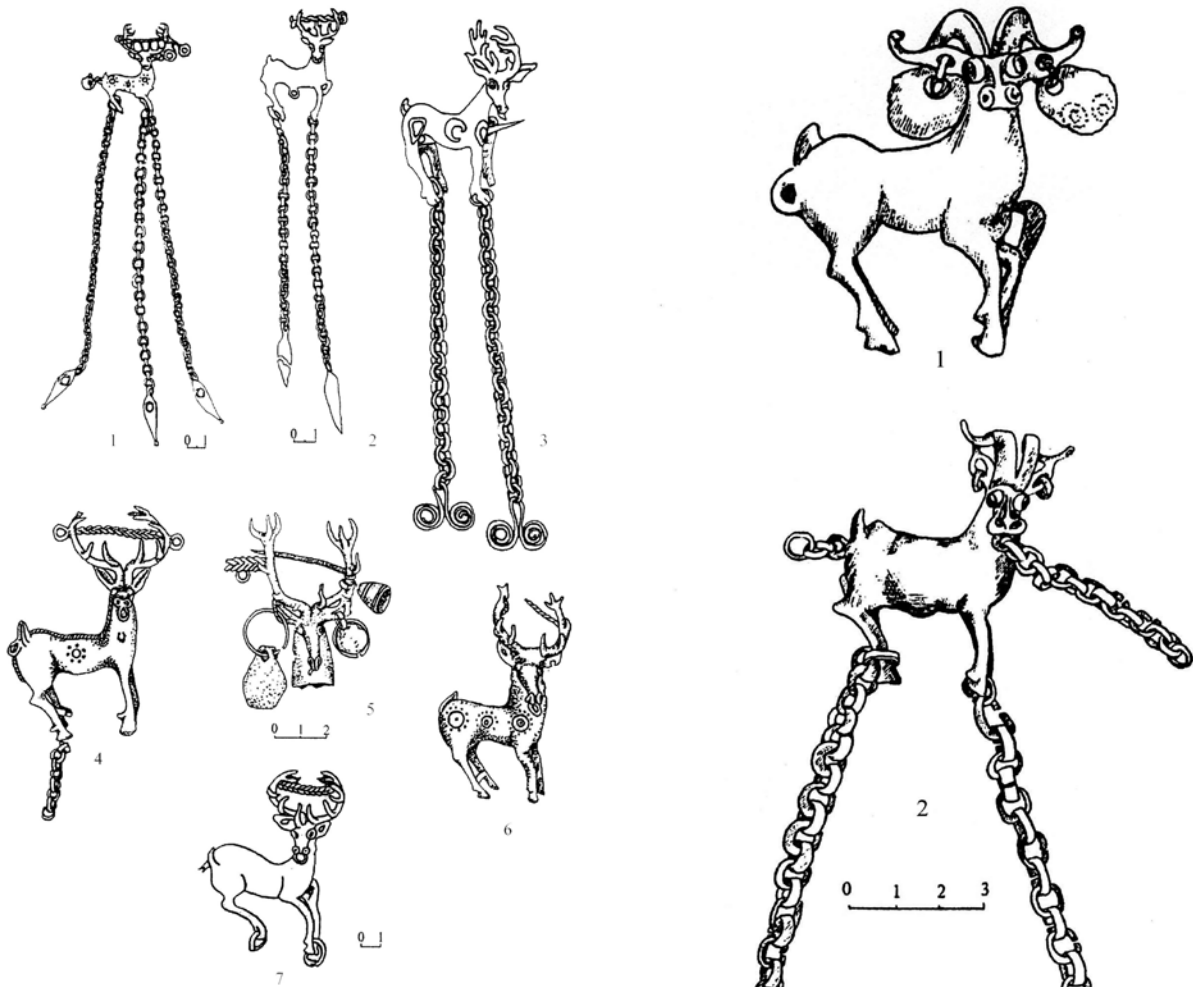
Anahtar Kelimeler: Hayvan şekilli *fibula*, bronz, gümüş, Geç Bronz Çağı, Gürcistan.

The paper deals with high relief representations of deer, ibex, and horse, made of bronze and silver and provided with a fastener on the rear side. I call such items *fibulae* with zoomorphic representations with the function of bow-shaped pin. The specimens are characteristic of Georgia's foothills and mountains, but the greatest number comes from third and fourth century AD burial grounds in the Aragvi River valley (Nedzikhi, Badrianebi, Tsipranisdziri, Zhinvali). Solar signs are often found on the animals, and point to divine semantics and religious ritual as well as to adornment.

Fibulae of the third/fourth century AD with zoomorphic representations are works of earlier periods. The so-

called 'Caucasian animal style', reaching the height of its development in the eighth/seventh century BC., had a great impact on the later development of Georgian art. At the same time, the existence of these representations over a long period of time points to the presence of a single system of beliefs; their refinement and perfection continued throughout the first millennium BC.

The archaeological excavations carried out in Georgia in the second half of the 20th century brought to light fairly numerous zoomorphic representations made of bronze and silver, considered in the specialist literature to be noteworthy artefacts of the Georgian material culture connected with the customs of the population of this

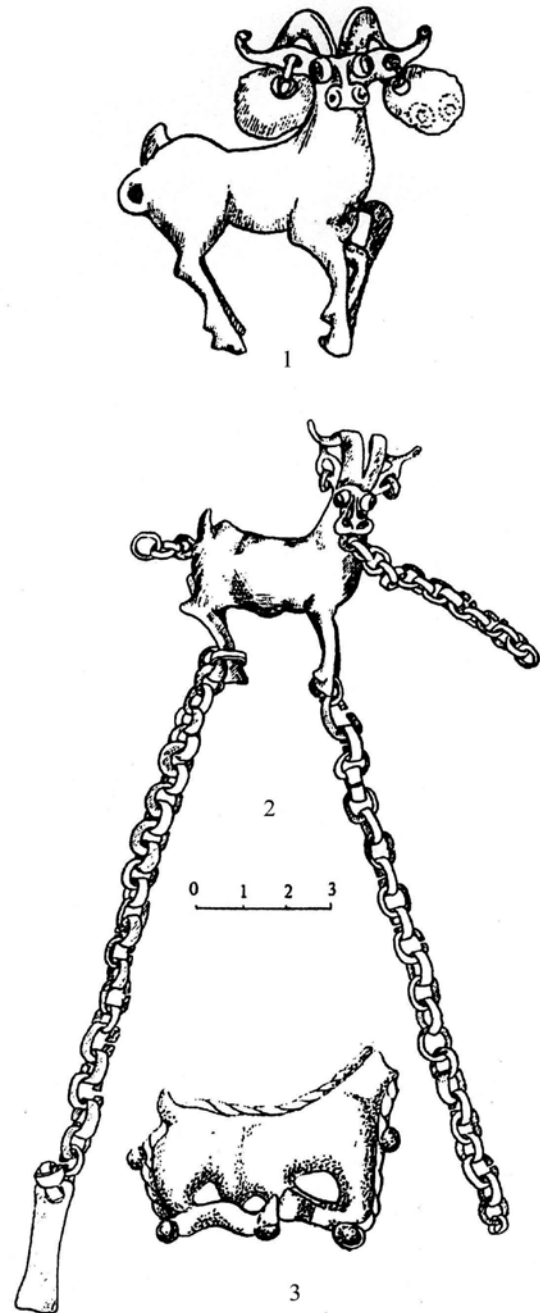


Pl. 35.1. Bronze *fibulae* with depictions of deer: fig. 1. From Nedzikhi, grave 199; fig. 2. From Nedzikhi, grave 168; fig. 3. From Zhinvali, grave 357; fig. 4. From Nedzikhi, grave 123; fig. 5. From Nedzikhi, grave 127; fig. 6. From Badrianebi, grave 6; fig. 7. From Omalo, grave 2 (by K. Ramishvili, 2011).

country.¹ Among such archaeological finds, especially notable are representations of various animals modelled in a fairly realistic manner, the reserve equipped with a fastener with a hook for the needle and needle tip. These bow-shaped *fibulae* with zoomorphic representations form the following group:

***Fibulae* with deer representations:** pl. 35.1, figs: 1-2 and 4-5, Nedzikhi burial ground, the Pshavi Aragvi valley; pl. 35.1, fig. 3, Zhinvali burial ground, the Aragvi valley; pl. 35.1, fig. 6 Badrianebi burial ground, the Pshavi Aragvi valley; pl. 35.1, fig. 7, Omalo burial ground, Pankisi valley.

***Fibulae* with ibex representations:** pl. 35.2, figs. 1-2, Tsipranisdziri burial ground, the Pshavi Aragvi valley; pl. 35.2, fig. 3, representation of a kneeling animal,



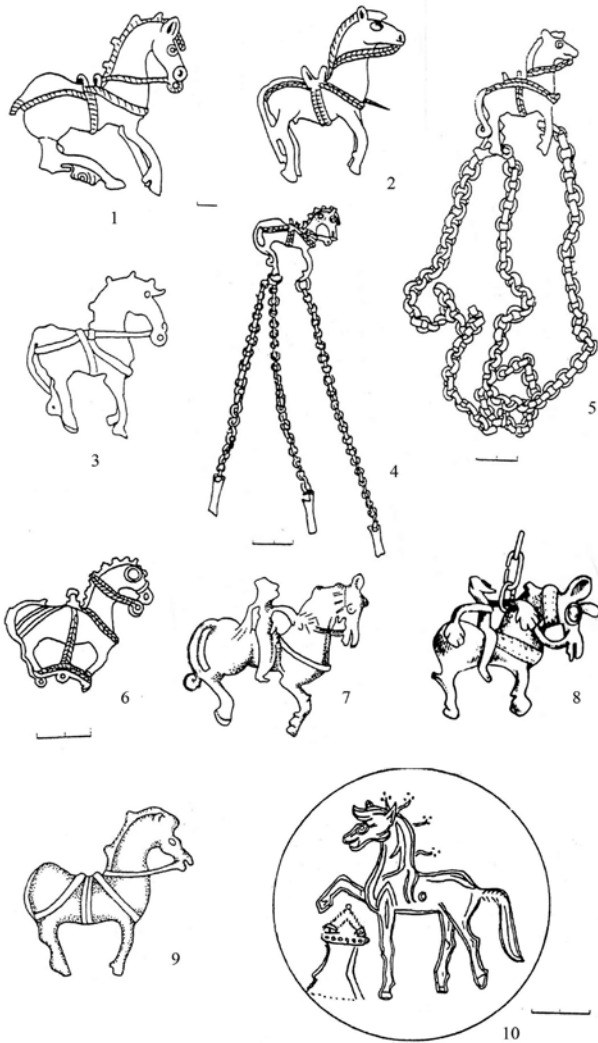
Pl. 35.2. *Fibulae* with depictions of ibex: fig. 1. From Tsipranisdziri, grave 5; bronze; fig. 2. From Tsipranisdziri, grave 20; by silver; fig. 3. A fragmented bronze figurine from Lechkhumi (by K. Ramishvili, 2011).

probably an ibex; the head is missing, decorated with bosses. A fastening device is on the back. The body features and shape of the tail resemble the Tsipranisdziri ibex figures. Casual find in V. Usakhelo (Lechkhumi).²

***Fibulae* with representations of horse and rider:** pl. 35.3, figs: 1-4, Nedzikhi burial ground, Pshavi Aragvi valley; pl. 35.3, fig. 5, Badrianebi burial ground, Pshavi Aragvi valley; pl. 35.3, fig. 6, exhibit of Museum of

¹ Mukhigulashvili 1984; Robakidze 1990, pp. 67–71; Robakidze 1995, pp. 124–25; Ramishvili 2000, pp. 68–77; Ramishvili 2001, pp. 53–63; as well as Ramishvili 2007, pp. 7–29.

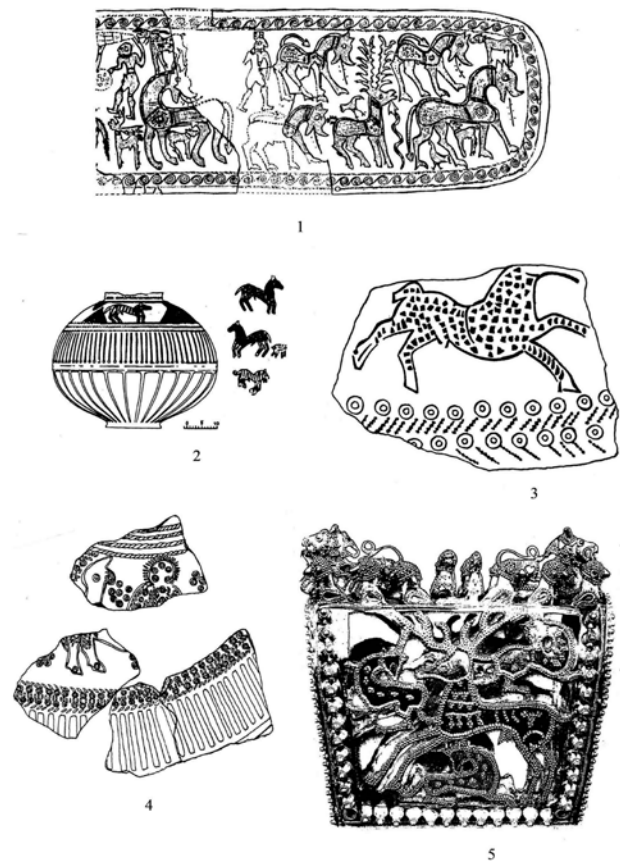
² Sulava 1996, pp. 81–82, fig. 29; Sulava 1998, p. 111. pl. 3, fig. 1.



Pl. 35.3. *Fibulae* with depictions of horse: fig. 1. From Nedzikhi, grave 5; silver; fig. 2. From Nedzikhi, grave 18; fig. 3. From Nedzikhi, grave 172; by silver; fig. 4. From Nedzikhi, grave 136; bronze; fig. 5. From Badrianebi, grave 3; bronze; fig. 6. In the Museum of Telavi; bronze; fig. 9. From Gveleti, grave 15; bronze. Bronze fibulae with depictions of horse and rider: fig. 7. From Kldeeti burial ground; bronze; fig. 8. From Duisi, in the Museum of Telavi; bronze; fig. 10. A silver *phiale* with the depiction of an horse in front of an altar, from Aragvispiri burial ground, grave 13 (by K. Ramishvili, 2011).

Telavi; pl. 35.3, fig. 9, Gveleti burial ground, Khevi;³ pl. 35.3, fig. 8, a horse with a rider from v. Duisi, Pankisi valley; pl. 35.3, fig. 7, a horse with the rider from Kldeeti burial ground.⁴

In discussing the dates of animal representations with the function of *fibulae* I relied mainly on the attending? (related?) burial goods and the reports or texts devoted



Pl. 35.4, fig. 1. Bronze belt from Chabarukhi; fig. 2. Fragment of a *pithos* from Dablagomi; fig. 3. Depictions of horse on a clay sherd from Dablagomi; fig. 4. Fragments of vessels with depictions of man and horse from Namarnu; fig. 5. A golden head-dress from Vani (by K. Ramishvili, 2011).

to their study.⁵ Parallel materials discovered in various regions of Georgia were also taken into account.

Along with *fibulae* bearing representations of deer, ibex, and horse, numerous other items have come to light: clay jars with ribbed necks, fired, straw-coloured or reddish, one-handed pots, bronze cymbals, bronze and iron bracelets, bow-shaped *fibulae*, silver and bronze earrings in the shape of a question mark, bronze buckles, among which lyre-shaped specimens stand out, bronze conical small bells, insignia belts, with clasps of various sizes and outline, adorned with precious stones or plain, glass *unguentaria*, iron and bronze seals, the majority of which are adorned with gems, beads, iron spearheads, knives, daggers, etc. (pl. 4, no. 2, complex no. 357 at Zhinvali burial ground; pl. 4, no. 1 Nedzikhi burial complex no. 26). The burial complexes in which animal-image *fibulae* were found are dated to the third/fourth century AD. The date is supported by similar material discovered in various

³ Mindorashvili 2005, pp. 81–82, pl. 11, fig. 117.

⁴ Lomtadidze 1957, p. 74, fig. 12.

⁵ Robakidze 1990, pp. 67–71; Mukhigulashvili 1984; Ramishvili *et al.* 1982; 1984; 1986; 1987; 1991; as well as Ramishvili 1991, pp. 89–95.

regions of Georgia.⁶ The study of the archaeological material brought to light in the Aragvi valley has convinced me that *fibulae* with zoomorphic representations have no early counterparts either in this region or in other parts of Georgia, with the exception of the Kldeeti rider which, together with the rest of the material from the burial-ground, is dated to the second century AD. In my opinion, the Kldeeti rider is also a *fibula* (without the fastening needle) and it resembles closely the rider and horse *fibula* in the Museum of Telavi. The Kldeeti specimen was found by chance during earth-works; hence its archaeological context cannot be determined, though part of the material that were found in the same context, may be dated to the third century AD.⁷

As to the technique of making animal-image *fibulae*, all specimens are made by casting, with the use of a wax mould.⁸ Following the withdrawal of the bar? from the mould, the fastening needle was attached to the animal, and small rings were soldered to various parts of the body, to which chains, pendants of various figures and miniature bells were tied. In modelling the animal's figure, plastic tasks (?) came to the fore (?); the art of high relief sculpture was refined, while by attaching (arranging?) the fastener on the hollow rear side, the item became functional (more practical?). Of course, these representations retained the meaning connected with ancient religious rituals, acquiring at the same time an ornamental function. As to the solar signs often depicted on the animal torso's, they must have been die-pressed after the withdrawal of the wax from the mould (except the bosses that were probably made on the animal representations in the mould). These solar signs are symbols denoting the divine meaning of this ritual objects.

The front of the zoomorphic *fibulae* is generally of realistic-decorative character. Stylised elements merge with the fairly realistic form of the animal bodies, especially in the modelling of the muzzle. Separate parts of the animal (chest, belly, rump) are done in high relief, and the fluid alternation of elevated or depressed plastic volumes makes for the impression of a round sculpture. The flexible line running around the torso and the expressive character of the head's features give a sense of life and inner dynamism to the seemingly static animal figures. The sculptors generalise shapes but do not overlook the details, using them to demonstrate the wholeness of the composition. In the case of deer and ibexes, the antlers and horns, which shoot upwards as if connected with the heavenly world, are rendered with naturalistic precision. The design of the antlers makes each representation very expressive. In modelling the horse figures, the artisans make masterly use of the harness. At the same time, it is notable that a horse depicted without a rider is represented in full harness, while horses with a rider have no saddles. Apart from their ritual function, the 'adornments' and solar signs tied to

or carved (or punched) at various places of the body of a figure impart cheerfulness and life to the representations. The skilled metalworkers succeed in rendering not only the visual exquisiteness of the object but seem to gain an insight into the ideological essence of the representations – the divine principle with which the figures represented here are linked.

The deer is one of the animals depicted earliest on *fibulae* with zoomorphic representations (pl. 35.1). Representations of deer are attested on Aeneolithic-Early Bronze Age pottery. The view has been put forward that by that time, the deer was linked to fertility.⁹ By the second half of the Middle Bronze Age, figures of 'divine' animals include the deer, ibex, dog, boar, etc, cast in bronze.¹⁰ It should be noted that the representations of deer discovered at the Shilda shrine¹¹ differ in style and technique from Caucasian figures from the period of wide adoption of iron, although the same motif lies at the basis of the origin of the representations of both groups.

The wide range of the deer cult in the Late Bronze Age is indicated by the numerous sculptures, both pendant and graphic representations, characterised by strong stylisation, in Colchian-Koban and eastern Georgian fine arts. A definite change in the style of Georgian and Caucasian animal-image representations is noticeable from the mid-first millennium BC., when a new trend towards greater realism took shape, in lieu of strong stylisation. This process was inhibited by Georgia's close contacts with the Greco-Roman world on the one hand, and with Iran and the Hellenistic East on the other. However, a group of monuments in Georgia present the original manner of expression, based on traditional ideology.¹² Among these are deer figures on open-work buckles (clasps) and on *fibulae*. However, stylistic analysis suggests that on *fibulae* with animal images, particularly deer, the new trends organically merge with traditional representations. If we consider the area in which animal-image *fibulae* appear (Omalo-upper reaches of the Alazani, Nedzikhi, Tsipranisdziri, Zhinvali in the Aragvi valley, Usakhelo in Lechkhumi, etc.) the cited examples in the minor plastic arts are characteristic of the foothills and mountain zone. Perhaps Georgia's mountainous region preserved intact for longer the rituals and objects connected with ancient beliefs. After the official adoption of Christianity, items with deer representations, including *fibulae*, gradually went out of use, and they are not found in fifth century AD burial complexes.

Fibulae with a representation of ibex (pl. 35.2) are relatively smaller in no. (two from Tsipranisdziri, one from Lechkhumi). The ibex, as an incarnation of the god of proliferation (=growth?), fertility and protector of beasts, was widespread in western Georgia. However, it was not

⁶ Apakidze 1955, pp. 48–52. Papuashvili 2006, pp. 46–67; Nikolaishvili 1995, pp. 97–134.

⁷ Lomtadze 1957, pls. 8–13.

⁸ Ramishvili 2007, pp. 29–30.

⁹ Kikvidze 1976, p. 191.

¹⁰ Maisuradze and Pantskhava 1984, pls. 21, 25 and 13.

¹¹ Maisuradze and Pantskhava 1984, pl. 26, figs. 1–3.

¹² Amiranashvili 1971, p. 82; as well as Khidasheli 1972, pp. 85–86.

alien to eastern Georgia, where along with representations of the ibex on *fibulae*, heads, horns, and statuettes of ibex cast in bronze have been discovered in large numbers.

The oldest ibex statuettes are known from the Shilda shrine.¹³ Strongly stylised, these figures with pendant rings are notable for their fairly high artistic level. At the final stage of the Late Bronze Age figures with pendant ibexes occur both in the southern and northern Caucasus, especially in association with the Koban culture.¹⁴ These representations have their closest parallels in Colchian materials. It is somewhat strange that at the Tlia burial ground, which comes entirely into the circle of Colchian culture, ibex figures are very rare. Instead, representations of winged ibexes are found in abundance on engraved belts discovered in burials.¹⁵ The burial complexes uncovered at the city site of Vani provide a wealth of material for the study of ibex iconography and its place in Georgian (Colchian) artistic thought and in the religious system. For example, the necklace found in burial 6, dated to the fourth century BC., consists of 56 representations¹⁶ of kneeling ibexes. A defective bronze ibex figure with drastically folded legs, found by chance in v. Usakhelo, Lechkhumi, is close to the Vani ibex figures,¹⁷ though the latter is of a much later date (*ca.* third/fourth AD?).

In the opinion of researchers, the symbolism of the Vani representations arose on the basis of Colchian beliefs and notions, as confirmed by rich ethnological material. According to this evidence, the ibex was considered one of the symbols of the god of fertility, proliferation (growth?), hunting and a protector of animals.¹⁸ Ibex representations are found on open-work *fibulae* (pl. 35.5), direct predecessors of animal-image *fibulae*, where in the form of the principal representation, it is much rarer than the deer¹⁹ but iconographically highly noteworthy, for by its external features it is very close to the ibex *fibula* found at Tsipranisdziri (pl. 35.5, fig. 1). It should be noted here that on open-work clasps (buckles) where the deer appears as the main figure, the ibex is often the secondary place (element, according to Khidashvili), while where the ibex is depicted as the main figure of the clasp (buckles), the dog is often depicted among the attending animals, but never the deer. This may be indicative of the primary role of the deer in the divine hierarchy of animals (at any rate, this appears to be the case among the finds from eastern Georgia).

Of no less interest are *fibulae* with horse representations. Among them, some are standing still (pl. 35.3, figs. 2-4), others express movement (pl. 35.3, fig. 1), and one is hobbled (pl. 35.3, fig. 6). The horse appears to have been

involved in the economic life of the Caucasian population from the initial stage of the Maikop culture.²⁰ The osseous finds at the Early Bronze Age sites show that the society inhabiting Georgia kept horses along with other domestic animals.

Significant material on the development of horse breeding in the southern Caucasus was found in a barrow dated to the end of the 15th century BC. near the village of Doghlauri, where the skeletons of two horses, two bronze bits and other items connected with harness come to light. Noteworthy also is a horseman's burial discovered in Abanoskhevi (the Aragvi valley) (second half of the 14th century BC.), where a young horse was buried.²¹ Interesting material connected with the horse came to light at the Shilda shrine as well²² and at Tserovani,²³ both dated to the 14th/12th century BC. The horse acquired special importance following the introduction of war chariots and the use of cavalry in warfare. Representations of horses are seen most vividly within the Colchian-Koban culture – both graphically and in statues in the round.²⁴ By this time the horse had become the object of worship. Horse representations increased appreciably from the sixth/fourth century BC., as did striving for realism (finds from Akhlagori and Vani).

From the first century AD along with the traditional 'sacred animals' (the deer, ibex, ram, etc.), the cult of the horse and rider revived with fresh force. This trend was nourished by external factors as well, namely the wide diffusion of the cult of Mithras in the Near East and the Mediterranean basin, penetrating into the southern Caucasus. The increase in the number of horse representations (including on our *fibulae*) may be accounted for by this development, for the cult of the horse in Mithraism reached its highest level in the opening centuries of our era. Especially interesting in this group of material are *fibulae* with the representations of the horse and 'holy rider' (pl. 35.3, figs. 7-8). Judging by the Kldeeti representation of the 'horse-rider', the rider with emphasised phallus and with 'omnipotent' hands must be a god (pl. 35.3, fig. 7). The 'god' of the Museum of Telavi is rendered in precisely the same posture but without the phallic feature (pl. 35.3, fig. 8). These two examples show clearly the influence of representations of Mithras on a horse, which was widespread in the world of the time. Our *fibulae* represent a kind of synthesis, as local tradition merges with Mithraism. This is exemplified by the iconography of a 'god' mounted on a horse.

The spread of the cult of Mithras in Georgia and its fusion with the local cult of the sun and the horse are indicated by one more group of archaeological material of third and early fourth century AD silver cups (pl. 35.3, fig. 10)

¹³ Maisuradze and Pantskhava 1984, pl. 13, fig. 17; and also pl. 19, figs. 17-18.

¹⁴ Uvarova 1900, pl. 25 and 35, fig. 2.

¹⁵ Techov 1980, pls. 127-129.

¹⁶ Lordkipanidze *et. al.* 1972, pp. 198-242, fig. 44.

¹⁷ Sulava 1996, pp. 81-82, fig. 29.

¹⁸ Khidasheli 1972, p. 63; as well as Abakelia 1997, p. 59.

¹⁹ Khidasheli 1972, pp. 32-34.

²⁰ Munchaev 1973, pp. 71-77.

²¹ Ramishvili 2007, p. 23.

²² Maisuradze and Pantskhava 1984, p. 18, pl. 24, fig. 1.

²³ Sadradze 1991, pl. 14, fig. 6.

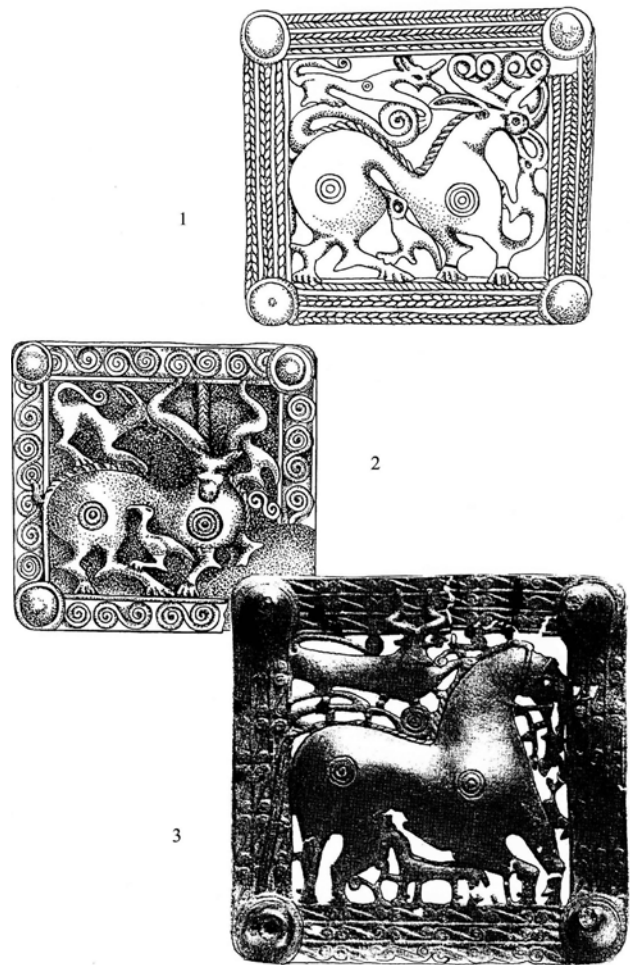
²⁴ Abramishvili 1975, pp. 52-57; Khidasheli 1982, pp. 79-86; Pantskhava 1988, pp. 25-30; as well as Urushadze 1988, pp. 89-120.

with representations of a horse standing with its front foot raised in front of a shrine.²⁵

Another important material relating to the horse cult in both western and eastern Georgia has survived in ethnographic life.²⁶ Here I shall touch upon the custom surviving in the mountainous regions of Georgia almost to the present day, of a horse race dedicated to the deceased. The routes were planned: the goal was to send off the soul of the deceased to the other world.²⁷ The race horses were specially beautified by women: they plaited the mane and tail, adorning them with coloured threads, and tied on beads and charcoal to protect them from the evil eye. Along with the living, the soul of the deceased had also to ‘take part’ in the race: to this end, a saddled and bridled ‘horse of the soul’, took part in the race without a rider. It should be noted that in the race the other horses – with riders had no saddle on, and a flat belt under the belly for the rider to hold. The riderless horses on our *fibulae*, depicted with saddles and bridles, serve as confirmation of and suggest that we are dealing with the internment of the ‘horse of the soul’ in the graves of the deceased. This view is supported by the evidence of the *fibulae* depicting horses with riders who have no saddles.

Among the animal-image *fibulae* in the present paper, the first to come to mind are the open-work buckles of an earlier period, with the principal animal figures depicted in the middle (pl. 35.5) showing similarities with the zoomorphic representations on our *fibulae*. Apart from the fact that the same species of animals are represented on items in both groups (the deer, ibex, and horse), they have common stylistic features as well: in both cases the animals are depicted in right profile, the chest and rump sharply accented, adorned with similar solar signs. Some of the central figures on the buckles face the viewer in the same way as the deer and ibex on *fibulae*. Similarities are seen in the modelling of hands, faces, eyes, ears and antlers/horns (of pl. 35.2, fig. 1 and pl. 35.5, fig. 2). The animals on the buckles in some cases have their tails wound spirally (pl. 35.5, figs. 1 and 3) like many of the horses on the *fibulae* (pl. 35.3, figs. 1 and 3–5), a feature apparently inherited by the buckles from the *fibulae*, proving once again the genetic link between these two groups.

Of course, differentiating features are present. In particular, on animal-image *fibulae* only the central figure of the open-work buckles is used; the frame and attending animals are removed; stylised representations are replaced with realistic ones. The problems of modelling the animal body with plastic forms in open-work buckles were solved successfully. The function of the items was also altered significantly. These changes met both the spiritual and aesthetic demands of believers.



Pl. 35.5. Bronze clasps with depictions of deer, ibex, horse and other animals; fig. 1. Hermitage, St. Petersburg; fig. 2. From Sachkhere; fig. 3. From Katskhi, Chiatura region (by K. Ramishvili, 2011).

Such changes coincided with changes in social life, which conditioned the replacement of old insignia belts with open-work buckles by insignia belts of a new type, highly interesting specimens of which were attested at the Nedzikhi burial ground, and yielding the largest number of animal-image *fibulae*.²⁸

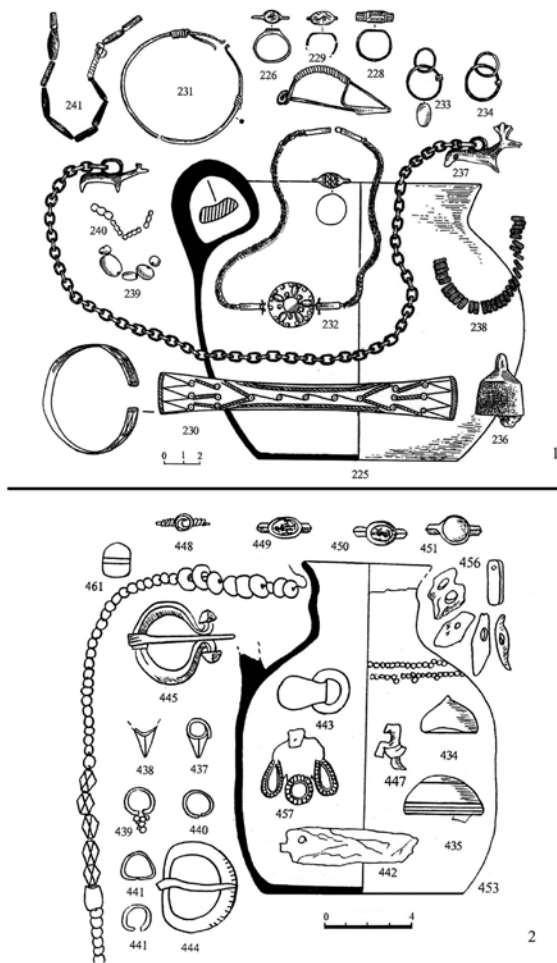
Thus, through the open-work buckles, the animal-image *fibulae* become linked to older materials (namely, the subjects engraved on Colchian axes and clasps, as well as engraved belts of the Late Bronze Age). Some scholars question linking open-work buckles to material culture at such a great chronological distance, but long-standing research and new archaeological finds have proven the link between open-work buckles and engraved belts (pl. 35.4, fig. 1). At the same time, graphic representations of animals occur on Early Hellenistic period pottery, such as on the fragments of a clay vessel from the Dablagomi cemetery, on which graphic representations of various animals are found. B. Kuftin linked these representations by style and ornament to the subjects on engraved belts,

²⁵ Apakidze 1955, pls. 56–57.

²⁶ Makalatia 1927, pp. 49–70; as well as Ramishvili 2007, pp. 37–40.

²⁷ Abakelia 1997, pp. 156–59.

²⁸ Robakidze 1995, pp. 124–25; Ramishvili 1991, pp. 89–95.



Pl. 35.6, fig. 1. From Nedzikhi burial ground, grave no. 26; fig. 2. Zhinvali burial ground, grave no. 357 (by K. Ramishvili, 2011).

such as that of a horse in movement,²⁹ dated to the fourth century BC. (pl. 35.4, fig. 3). At the Dupnari burial ground an urn was found in burial 31; the frieze around its mouth features the horse, deer and wolf-dog.³⁰ This vessel is also dated to the fourth century BC. (pl. 35.4, fig. 2). Highly interesting graphic representations of animals and humans are depicted on fragments of a Hellenistic vessel brought to light in v. Namarnu.³¹ Despite its fragmentary condition, parts of a human and indeterminate hoofed animal are discernible on the crock (body?) of the vessel (pl. 35.4, fig. 4). The gold headdress of the fourth/third century BC.³² discovered at Vani is of considerable significance in connection with the animal-image *fibulae* and over-work buckles (pl. 35.4, fig. 5). It bears a plot (design?) identical with the open-work buckle in a rectangular frame adorned with various images. To date, this is the oldest specimen of animals, though it is not yet a buckle or an *insignia*

belt. This function was apparently acquired by the framed buckle (?).

New archaeological evidence indicates that third/fourth century AD? *fibulae* with zoomorphic representations are closely related to materials of preceding periods. The so-called ‘Caucasian animal style’, reaching the zenith of development in the eighth/seventh century BC., exerted tremendous influence on further developments of Georgian fine art. At the same time, it is obvious that the form of these representations, which existed over a long period, represents a single integrated phenomenon, fed by a single ideology, whose refinement and perfection continued in the same ethno-cultural environment during the first millennium BC.³³

The animal-image *fibulae* discussed in this paper, which evince a significant link with the central figures of open-work buckles, must be the latest examples of the so-called ‘Caucasian animal style’. To be sure, this style ceased to exist after the official adoption of Christianity, but the new religion made immediate use of the images of some animals, which occur frequently in the décor of Early Christian churches.³⁴

²⁹ Kuftin 1950, pp. 103–105, pls. 37–38, fig. 27.

³⁰ Kiguradze 1976, pp. 33–35, pl. 10.

³¹ Papuashvili 2006, pp. 48–49, pl. 25.

³² Kačarava, Akhvlédiani and Kvirkevelia 2007, p. 60, fig. 21; Okromravali Kolkheti 2005 (=Colchis rich in gold), pp. 48–49 and 59.

³³ Khidasheli 1972, pp. 56–86.

³⁴ Urushadze 1988, pp. 147–65.

Bronzes from the Archaic Sanctuary of Athena in the Phocian Anticyra (Greece)

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*To the memory of Claude Rolley,
ingenious teacher and beloved friend.*

Abstract: The paper will discuss three bronzes from the Archaic sanctuary of Athena in Anticyra, in southeastern Phocis. To set them in context it gives a brief presentation of the temple itself and the stone base for the original bronze cult statue, excavated back in 1954 and never published. The first small bronze is a Late Archaic base with a dedicatory inscription giving a name, tentatively identified with a civic subdivision of Anticyra. The second bronze is a mid-fifth century BC. headless statuette of a kore. The third is a relatively large bronze statuette of Athena Promachos. It is considered to be the best surviving exemplar of an Attic series, which includes several similar statuettes found on the *Acropolis*. It is also the earliest, to this date, occurrence of inlaying on small scale bronzes and dates a little before 480 BC.

Keywords: Bronze, statuette, Athena, Archaic Period, Anticyra, Phocis.

Özet – Phokis Antikyra’daki (Yunanistan) Arkaik Athena Tapınağı’ndan Bronzlar: Bu makalede, güneydoğu Phokis’deki Antikyra’daki Arkaik Athena tapınağından üç bronz tanıtılacaktır. Bu eserleri konteks içinde değerlendirmek amacıyla, tapınağın kendisinin ve 1954’te kazılan ve asla yayınlanmayan orijinal bronz kült heykelinin taş kaidesinin kısa bir sunumunu verir. İlk küçük bronz, Antikyra’nın sivil bir alt bölümü ile geçici olarak tanımlanmış bir isim veren bir adli yazı ile Geç Arkaik bir kaidedir. İkinci bronz İ.Ö. 5. yy.’ın ortalarına tarihlenen bir koreye ait başsız heykelciktir. Üçüncüsü ise Athena Promakhos’a ait nispeten büyük bir bronz heykelciktir. Akropolis’de bulunan benzer heykelcikleri içeren bir Attika serisinin kalan en iyi örneği olarak kabul edilmektedir. Aynı zamanda, bugüne kadarki en erken tarih, küçük ölçekli bronzlarda kakma oluşumu İ.Ö. 480’den biraz erkene tarihlenmektedir.

Anahtar Kelimeler: Bronz, heykel, Athena, Arkaik Dönem, Antikyra, Phokis.

The ancient Phokian city of Anticyra was located on the northern shore of the Corinthian gulf, in a naturally protected harbour, at the inlet of a smaller gulf, which, according to Plutarch, was named after the city.¹ This inlet is just northwest of a rocky and high peninsula called Kefali. Although Anticyra has been inhabited since, at least, the Early Helladic period, its most important remains date from the Archaic to the Late Roman period.² No systematic excavations have ever been undertaken and everything we know about the ancient city is the

result of rescue excavations, carried out since the 1950s, but more systematically from the early 1970s onwards. In the graves dating to the Archaic period Corinthian pottery predominates until *ca.* 530 BC., when it starts to be gradually, but never totally, replaced by Attic pottery. Various Corinthian artefacts (vases, terracotta figurines, bronze vessels, and utensils) continue to be popular among the grave goods in the cemeteries of the city down to the third century BC.³

The only excavated building of the Archaic period in Anticyra is a simple temple *extra muros*, on the foothill of

¹ Plut., *Antonius* 68. A good collection of ancient sources on Anticyra can be found in McNerney 1999, p. 323; as well as Oulhen 2004, p. 410

² For some overviews of the history and archaeology of the site, see: Fossey 1986, pp. 23–25; Baziotopoulou 1988; McNerney 1999, pp. 7–76 and 323–24; Sideris 2001; Oulhen 2004, p. 410; as well as Sideris 2010.

³ Very succinct reports on the finds of rescue excavations are published in the *Αρχαιολογικόν Δελτίον* of the years 1968, 1971, 1978–1982, 1995 and 1997.

the Siros hill, in the area called by the locals Palatia. It is located 50 m. to the south of the modern road connecting modern Anticyra with the village of Desfina. The spot was reported by a villager to the Ephorate of Delphi in the early 1950s, and Evangelos Mastrokostas, then Epimelete of Antiquities there, began excavations in 1954. The finds led Mastrokostas to identify the building with a temple of Athena, but unfortunately, he did not leave a diary in the Ephorate of Delphi and all we have is a very succinct account by Pierre Amandry in the *Chroniques* of the *BCH* of the following year.⁴

Of the temple itself, we hear nothing from the ancient sources. Pausanias does not mention it in his otherwise detailed description of the city and its rural sanctuaries (Artemis Diktyinna and Artemis Eleithya)⁵ and, although an *argumentum ex silentio* has only limited value, one would infer that the temple did not still anymore in the second half of the second century AD. This view is supported also by the finds, transferred then and kept until now, in the National Archaeological Museum of Athens (hereafter NAM), which do not comprise anything later than Hellenistic.

The temple is a simple rectangular building 5.08 m. wide and 10.50 m. long. The walls, preserved to one or two courses high, are built in the polygonal system, common in Phocis during the early sixth century BC. The same period is also indicated by the Laconian-type ceramic antefixes of the temple, which represent a *gorgoneion* in relief flanked by painted snakes and swastikas.⁶ They date to the second quarter of the sixth century BC., and they are also kept in the NAM.

To the south and west sides of the temple, in a distance of about half a meter, there is a retaining wall of rough stones. The temple itself has the usual eastern-western orientation with an entrance on its east side and a small *adyton* in its west end. In the middle of the west wall, there can still be seen a large rectangular base (77.5 × 55.5 cm), made of grey conglomerate limestone, for the cult statue (fig. 36.1). Judging from the size of the footprints carved in the stone (24.5 × 9.5 cm), the statue was made of bronze and approximately life-size. A deep rectangular hole in the centre of the base helped the support of the statue [7.5 × 5.5 × 9 (depth) cm]. Both the placement of the base and the size of the statue suggest that this was the original cult statue, for which the temple was built. The position of the feet indicates that it represented Athena probably in the Promachos variant usually called ‘Palladion’, standing with the feet close to each other, and was more popular before 525 BC. The Palladion is usually thought to be of Peloponnesian or eastern-



Figure 36.1. The limestone base of the cult statue in the Athena temple, Antikyra (by A. Sideris, 2011).

Greek origin, while the Promachos, with its ‘particularly aggressive and combative pose’ is considered an Attic creation.⁷

The Archaic temple was destroyed by fire in the second half of the fifth century BC. and replaced by a smaller one during the early fourth century BC. The Classical temple occupied only the northwest part of the original building and measured 3.85 m. in width and 4.50 m. in length. This later temple was destroyed before Pausanias’ visit, and most probably during the sieges of the city in the Hellenistic period (in 210 and 198 BC.).⁸

The finds are not numerous but include several architectural terracottas, some Corinthian Archaic and Classical pottery, some clay figurines, and a small group of bronze offerings. Besides the three objects, examined hereafter, there are some bronze jewellery (including spectacle *fibulae* and disc-headed pins) and some bronze vessels (mostly fragmentary *Lotosphiale* types).⁹

⁴ Amandry 1955. All the material in the NAM is currently under study by the author for a planned publication of the temple and its finds.

⁵ For the Diktyinna temple: Pausanias, × 36.5; *IG IX*, 1 (1897), nos. 4–5. For the Eleithya temple: Pausanias, × 38.9; Lolling 1889, pp. 229–32; as well as Dasios 2003, p. 450.

⁶ Amandry 1955, p. 262; Krauskopf 1988, p. 292, no 46; as well as Winter 1993, p. 203.

⁷ Hurwit 1999, pp. 23–24. For the Palladion and Promachos types, see also: Niemeyer 1960, pp. 56–64; Demargne 1984, pp. 969–72; Shapiro 1989, p. 25; Robertson 1996, pp. 430–38; as well as Deacy and Villing 2001, p. 20.

⁸ Polybius IX 37, 39.2–3. Tite Livy XXVI 26, 1–3; as well as Pausanias X 36.6.

⁹ Comparable sets of finds are known from the Phokian, Locrian and Aetolian shores of the Corinthian gulf and their hinterland (Kirrha, Amphissa, Erochos, Chaleion, Oeanthea, Kalydon, and Thermos). For an overview and further bibliography, see Vlachopoulos 2008.



Figure 36.2. The bronze *kore* statuette. National Archaeological Museum in Athens, acc. no. 16769. Front, back and 3/4 views (by A. Sideris, 2011).

The first offering discussed here is a full cast bronze headless statuette of a *kore* (NAM, Athens, acc. no. 16769), preserved to a height of 9.3 cm, wearing a *chiton* without sleeves belted in the waist, and sandals on her feet (fig. 36.2). It is covered with dark green patina with a few lighter spots. The folds of the *kolpos* (bouffant) above the belt are indicated with small incisions. The position of her hands is rather unusual: she has the left hand posed on her belly and with the right one holds the folds of her dress, close to the right thigh. The torso of our *kore* is slightly inclined to the left, showing a slight torsion movement, which would also be shown more intensely in the now lost head. Her size and general type recall the well-known female figures serving as stands for mirrors, but all known Classical female figures from mirror stands are *peplophoroi*, and they hold the folds of their *peplos* with their left hand.¹⁰ These mirror ‘caryatids’ are also either barefoot or wear boots/high slippers, but never sandals.¹¹

Our figure represents possibly the dedicator, or it comes from a small statuary group. In any case, it is an average quality work of a northeastern Peloponnesian workshop. The large vertical and undifferentiated folds of her *chiton* are considered typical of the Argive style, and they are often present on the garment of the mirror caryatids attributed to the Argive group.¹² However, a figurine of a ‘priestess’, in Boston (fig. 36.3), showing the same traits (same massive folds on her *peplos*, same somewhat clumpy hands, also non-barefoot) was found in Corinth.¹³ Our *kore* should be dated to the same period as the Boston ‘priestess’, that is 460–450 BC.

The next find (NAM, Athens, acc. no. 16770) is an almost rectangular base covered with dark green patina and with



Figure 36.3. Bronze statuette of a ‘priestess’. Boston Museum of Fine Arts, acc. no. 98.668 (by A. Sideris, 2011).

four small lugs in the corners (fig. 36.4). It measures 8 × 7.9 cm (without lugs) or 9.6 × 7.9 cm (with lugs) and 1.7 cm in height. The lugs would help to insert it into the *tormos* (carving) of a larger stone base and would be secured with lead.¹⁴ The need for a larger and more secure base indicates that the element standing on it was high and unstable. This might be a lamp or censer holder, or something similar, with a central cylindrical part, as we may judge from the shape of the hole in the middle of the base (diam. of the hole 2 × 1.5 cm).

¹⁰ Keene Congdon 1981, pp. 6–8 and 81–82.

¹¹ Keene Congdon 1981, p. 84.

¹² Rolley 1983, p. 90; Vocotopoulou 1997, pp. 141 and 255, no. 139; as well as Keene Congdon 1981, pls. 35–36 and 40–42.

¹³ Of course the find-spot does not determine the workshop where the statuette was made. Comstock and Vermeule 1971, pp. 54–55.

¹⁴ Heather F. Sharpe discussed the form and function of such lugs during her presentation in the XVIIth Bronze Congress at Izmir.



36.4



36.5

Figures 36.4-5. Bronze base with an inscription. National Archaeological Museum in Athens, acc. no. 16770 (by A. Sideris, 2011).

A dedicatory incised inscription runs along the two sides of the square. The incision is clean, made with a pointed burin, and the letters measure from 3.5 mm (O) to 9 mm (M), with most of them being around 6 mm. The script is Phocian Late Archaic according to the form of ‘theta’, still with a cross in the circle, a particularity abandoned in Phocis during the second quarter of the fifth century BC., and this date is consequently the *terminus ante quem* for our base (fig. 36.5).¹⁵ The formula including the pronominal ‘με’, when the object is personified and becomes the enunciator of the dedicatory phrase, starts from the eighth and is gradually abandoned in the sixth century BC., with a few cases continuing into the early fifth century BC.¹⁶ The inscription reads ΔΙΟΝΔΑΙ ΜΑΝΕΘΕΚΑΝ ΤΑΘΑΝΑΙ (Διόνδαι μ’ ἀνέθεκαν τ’ Ἀθανά), meaning ‘Diondai dedicated me to Athena’. The name in plural is a *hapax* and we cannot tell if it is a male (Diondas) or a female one (Dionda).

Etymologically it seems to stem from the adjective *δίος* (*δίος*), which means a) originating from or belonging to Zeus, b) divine, heavenly, c) noblest, marvelous when applied to women. In the *Iliad* ‘*dios*’ is used in reference to Athena and in the *Odyssey* in reference to Helen.¹⁷ Although an interpretation of ‘Diondai’ as a theophoric epithet of Athena in dative case (with a hypothetical nominative: *Athena Dionda*) is grammatically possible, this would require supposing that the collective subject of the dedication is omitted. Such a hypothesis is, however, syntactically impossible, at least in connection to this type of formulaic dedicatory inscriptions.¹⁸

We cannot be sure who these Diondai were, but it seems quite possible that they were a family, a tribe, or another civic subdivision of Anticyra.¹⁹ Collective dedications are well known in many Panhellenic, as well as in regional and local, Greek sanctuaries, but they almost exclusively represent the entire civic body of a particular city. In a few cases we know of families, of city councils and other city officials, or of professional groups as dedicators, but tribes have not been recorded, hitherto, in dedicatory inscriptions.²⁰

The last and most interesting among the offerings is a relatively large bronze statuette of Athena in the familiar Promachos type (figs. 36.6-8). This statuette actually was not found by Mastrokostas during the excavation, but by a villager of Anticyra, named Nikos Alexiou, who gave it to the Ephorate and indicated the spot where it was found. However, during his investigation Mastrokostas, found the statuette’s base, confirming thus the credibility of the villager’s account.²¹ The statuette was never published, but Semni Karouzou, in a guidebook of the NAM, suggested that it might be of Boeotian origin.²² We will see that this is highly improbable. Nikos Kaltsas gave a few years ago a good photograph of the statuette in a lavish publication of the museum, but he did not comment on it.²³

The statuette (NAM, Athens, acc. no. 16768) measures 35 cm in h. without the base and 36.8 with its base, and

¹⁵ Amandry 1955, p. 257. For the script, see: Jeffery and Johnston 1990, pp. 99–104, especially fig. 30.

¹⁶ Lazzarini 1976, pp. 74–75.

¹⁷ *Iliad* XI 290; *Odyssey* IV 305. *LSJ* s.v. *δίος*.

¹⁸ Lazzarini 1976, pp. 58–60; Depew 2000, pp. 65–77; as well as Sideris 2002, pp. 177–78.

¹⁹ Hansen 2004, p. 96, nt. 11; as well as Oulhen 2004, p. 410, no. 173.

²⁰ For a family dedication (the famous *Kypselidai phiale* in Boston) and an obscure group of officials from Oeanthea (*syndamiorgoi*), see: Sideris 2002, pp. 179–80 with earlier bibliography. For a dedication made by the deme of Sounieis, see: Lazzarini 1976, pp. 152–53 and 155, no. 908.

²¹ Amandry 1955, p. 257, and information collected from elder inhabitants of Anticyra.

²² Karouzou 1993, p. 112.

²³ Kaltsas 2007, p. 249, in left.



Figure 36.6. Bronze statuette of Athena Promachos from Anticyra. National Archaeological Museum in Athens, acc. no. 16768 (by A. Sideris, 2011).



Figure 36.8. Lateral views of the Athena Promachos statuette (by A. Sideris, 2011).



Figure 36.9. Detail of the Promachos statuette with a conical weight on the *apotygmata* and a patch above the left foot (by A. Sideris, 2011).



Figure 36.7. Front and back views of the Athena Promachos statuette (by A. Sideris, 2011).

it was cast in the technique of ‘lost wax’. Its lower part is hollow, but no investigation of the interior was possible due to the base position.²⁴ The entire surface is covered by an almost uniform, very dark green-brown patina with a few insignificant damages and a couple of rectangular repair patches (fig. 36.9). On the right shoulder, there is a red-brown spot probably caused by contact with an iron item. Some details are rendered by incision and encrustation, as we will see further. The base, originally cast apart, is 15.7 cm long, 9 cm w. and 1.8 cm h, and it was also inserted in some larger stone base (fig. 36.6).

The goddess, barefoot, steps with the left foot forward. She holds a shield (of which only the *ochanon* is preserved) in the left and a spear in the right hand, which

²⁴ The feet, which were originally soldered to the base, are now restored on it with the help of miniscule parts of plexiglas. In the lower visible part of the interior no remains of the clay core could be observed.



Figure 36.10. Detail of the *peplos* over the left arm of the Promachos statuette (by A. Sideris, 2011).

is missing from the middle of the forearm. Both the shield and the spear were cast separately and soldered to the goddess' hands. She wears a long *peplos* wrapped in a complicated way with multiple folds and *apoptygma*, an *aegis* and an Attic helmet, of which the crest is now missing.

The *peplos* reproduces the typical Archaic stylized folds, but in a softer way, not following the strict symmetry and rigidity of sixth century BC. Archaic creations.²⁵ It has, of course, no sleeves, but on the upper arm, one may observe a reversed 'V' created by the front and back parts of the garment (fig. 36.10).²⁶ The *apoptygma* bears on one of its extremities (the other being broken just above the knee) a conical weight (fig. 36.9).²⁷ The *aegis*, which has the function and place of an *epiblema*, is very simple, follows the body lines and covers the entire back and the breasts of the goddess. It is decorated all over with an incised regular scaly motif, but there is no *gorgoneion* (fig. 36.7). The same motif, more or less carefully executed, appears on several Promachos statuettes from *Acropolis*.²⁸ A simplified kymation decorating the frontal edge of the Attic helmet (fig. 36.11) is also rendered with incision.²⁹ On the top of the helmet there is a hole (1.9 cm diam.) indicating the place where the support for the crest was fixed, originally cast separately and now lost. In all probability it had as a front finial a *cheniskos*, or water-

²⁵ Rolley 1994, figs. 165, 180–181 and 183; as well as Stewart 1990, pls. 148–155.

²⁶ This detail, in earlier dates, is usually shown with a different iconographical convention, which resembles the modern Greek letter 'λ': Vocotopoulou 1997, nos. 74, 100–101 and 135.

²⁷ These wgs. were so much in vogue in the years 490–470 BC. (but already from about 525 BC. onwards) that they were also captured on vase painting. See, for instance, Athena on the name vase of the Foundry Painter and an Athena of the Berlin Painter: Rolley 1994, p. 68, fig. 61; Swan Hill 1987, no. 162. See also, the wg. on the *apoptygma* of a mirror caryatid from Sounion: Keene Congdon 1981, pl. 18, no. 20.

²⁸ Niemeyer 1960, pp. 6–84, figs. 6–7, 11–12, 20–21 and 31; as well as Niemeyer 1964, pls. 6–7, 9–13.

²⁹ Similar or simpler incised motives appear on the helmets of other *Acropolis* statuettes too: Niemeyer 1964, pls. 5–6, 10.



Figure 36.11. Head of the Promachos statuette with an engraved detail on the helmet edge (by A. Sideris, 2011).

bird head, as on the 'Meleso Athena' (NAM, Athens acc. no. 6447) found on the *Acropolis* of Athens and dated between 480 and 470 BC. (fig. 36.12).³⁰ A similar bronze crest from a statuette appeared recently on the antiquities market (fig. 36.13).³¹

The hair of the goddess is parted in the middle above her forehead, and a tongue-shaped lock falls in front of each temple.³² The details of the hair are rendered with fine wavy lines. On the back of the statuette, the hair falls in a compact biconvex mass again with fine wavy lines, which look almost engraved, but which were present on the wax model, possibly produced with the use of a very fine real wooden or metal comb. A fine tracer was probably used to strengthen these lines in the finished cast bronze (figs. 36.7 and 36.14).³³ This iconographical convention for the hairstyling is typical of Athens in the early fifth century BC., as we may see on the *Acropolis* korai 684 and 685 (fig. 36.15).³⁴ The same fine wavy lines appear also on the hair of a small bronze kouros/athlete (NAM, Athens, acc. no. 6445), and a kore statuette (NAM, Athens, acc. no. 6491) (figs. 36.16–17), both from the *Acropolis*, as well as on some Athena statuettes (fig. 36.12).³⁵

³⁰ Niemeyer 1964, p. 21, pl. 11, no. 34a; Barr-Sharrar 1990, p. 215, fig. 9; as well as Vocotopoulou 1997, pp. 239–40, nos. 84–85.

³¹ Christie's 2009, lot 88, h. 8.9 cm, late sixth-early fifth BC.

³² Locks over the temples: Niemeyer 1964, pls. 5a, 9a, and 11a.

³³ Rolley 1983, p. 19, no. 204; as well as Mattusch 1997, pp. 197–98.

³⁴ For good hair pictures of both: Richter 1968, pp. 100–101, fig. 573 and 579 (dated respectively early fifth BC. and 500–490 BC.).

³⁵ On the bronze kouros dated ca. 500 BC., see: Niemeyer 1964, pp. 24–25, pls. 17–19, and 33b–c; Stewart 1990, p. 127, pl. 136; as well as Rolley 1994, pp. 287–89, fig. 291. For the kore, see Richter 1968, p. 84, fig. 435 (there dated 510–495 BC., but in the context of all *Acropolis* bronzes it can be dated a decade later). Athena statuettes with similarly treated hair: Niemeyer 1964, pls. 5c, and 11c.



Figure 36.12. Back view of the 'Meleso Athena'. National Archaeological Museum in Athens, acc. no. 6447 (by A. Sideris, 2011).

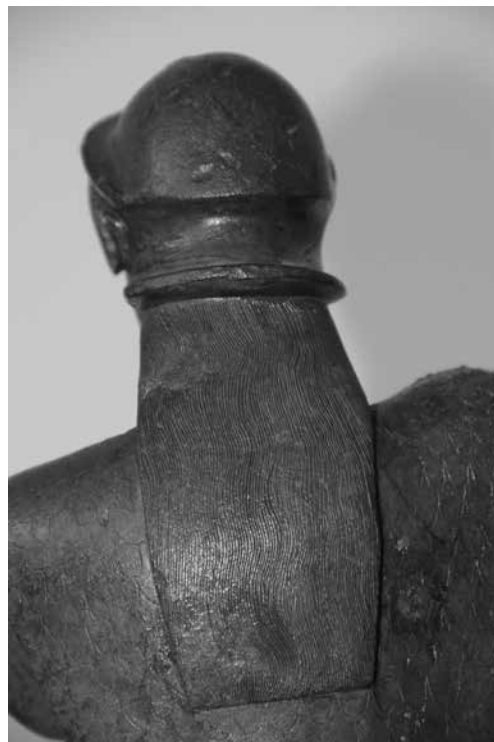


Figure 36.14. Fine hair line modeling on the Promachos statuette (by A. Sideris, 2011).



Figure 36.13. Isolated helmet crest from a Late Archaic–Early Classical statuette (by Christie's, 2011).



Figure 36.15. Detail of the hair modeling on the kore. Acropolis Museum, acc. no. 684 (by A. Sideris, 2011).



Figure 36.16. Bronze *kouros* head with fine hairlines. National Archaeological Museum in Athens, acc. no. 6445 (by A. Sideris, 2011).



Figure 36.17. Back of a bronze *kore* from *Acropolis*. National Archaeological Museum in Athens, acc. no. 6491 (by A. Sideris, 2011).



Figure 36.18. The head of the *Promachos* statuette (by A. Sideris, 2011).



Figure 36.19. The Athena head from the East pediment of the *Aphaia* Temple. Glyptothek in Munich (by A. Sideris, 2011).

The face of Athena is a graceful elongated oval (4.7 cm from chin to helmet front edge, **fig. 36.18**), strongly reminiscent of the Athena marble head from the eastern pediment of *Aphaia*, usually dated *ca.* 480 BC. (**fig. 36.19**).³⁶ The irises and pupils of the eyes and the eyebrows on our example, once inlaid with silver, are now lost (**fig. 36.20**). It is also possible that the whites of the eyes were inlaid with silver

³⁶ Richter 1968, pp. 98–99, pl. 20a; as well as Rolley 1994, pp. 204–205, with earlier bibliography.



Figure 36.20. Face details of the Promachos statuette, once inlaid with silver and copper (by A. Sideris, 2011).

and the irises and pupils were inset with polished stones.³⁷ The lips, which are remarkably small compared to anything we know from the Archaic *korai*, were inlaid with copper, also lost, intended to render their red colour. With these colourful accentuations, the face of the goddess would gain in expressivity and impressiveness. An overzealous cleaning back in the 1950s has left no traces of the inlay.³⁸ It seems that our Athena is the earliest surviving evidence for inlaid silver and copper on small-scale bronzes. For a long-time it was generally accepted that inlaying, though known on large bronzes through the entire Archaic period, on small-scale bronzes did not start before the Hellenistic period.³⁹ However, there are a few statuettes with inlays, dated a little before the mid-fifth century BC. These include an athlete and Heracles figures in the Louvre (both with copper-inlaid nipples and eyes possibly inlaid with silver or set with polished stones), dated *ca.* 460 BC.⁴⁰ There is also an Aphrodite figure kept in the Berlin Antikensammlung and dated to the mid-fifth century BC. The Berlin goddess wears a *himation*, the border of which is inlaid with copper.⁴¹

The Athena of Anticyra is actually the best surviving example of a well known Athenian series, mostly documented by bronzes from the *Acropolis*. Hans Georg Niemeyer, in the 1960s, thoroughly analysed the series in

³⁷ Mattusch 1997, p. 198.

³⁸ The measurements show however, that the sockets for the inlays do not exceed approximately 1.0 mm depth, with the exception, of course, of the irises/pupils, which could be inset with stones.

³⁹ Rolley 1994, p. 81. Nevertheless, Rolley 1983, p. 90, no. 236 shows a small bronze head, considered to be Argive and dated to 460 BC., with eyes inlaid with a white matter maintained in place with gilded wire. For inlaying on large bronzes, see: Rolley 1983, p. 32; Mattusch 1986, pp. 24–26; Boucher 1990, pp. 168–70; as well as Stewart 1990, pp. 40–41.

⁴⁰ Buitron-Oliver 1993, pp. 108–11, nos. 13–14, with earlier bibliography on p. 163 (Louvre acc. no. Br 4236 and Br 4171).

⁴¹ I thank my colleague Norbert Franken, who brought this statuette to my attention. Franken 2010, p. 163, fig. 1 and N. 33 with earlier bibliography (acc. no. 8599).



Figure 36.21. Bronze Promachos statuette. Antikensammlung in Berlin, acc. no. Misc. 6218 (by N. Franken, 2011).

two subsequent studies on Promachos and on Attic small-scale bronzes.⁴² These figurines date from approximately 530 to 475 BC., and they are considered to be more or less faithful copies of a large bronze Athena erected on the *Acropolis* (possibly during the era of Peisistratos) and destroyed in 480 BC. by the Persians.⁴³ Niemeyer identified four workshops, one of which produced small roughly made statuettes of the goddess in the same general attitude, but with rudimentary details, as the examples in Paris (Cabinet de Médailles, acc. no. 149) and Boston (Museum of Fine Arts, acc. no. 54.145).⁴⁴ Related to them, but not from the same workshop, is a Promachos in the Berlin Antikensammlung (acc. no. Misc 6218, **fig. 36.21**), said to be from the *Acropolis*, but so poorly preserved that any detailed analysis is impossible.⁴⁵

⁴² Niemeyer 1960; as well as Niemeyer 1964.

⁴³ The date of the Late Archaic Athena on the *Acropolis* is controversial, but the small bronzes series is clearly based on one or more large-scale models. Niemeyer 1960, pp. 7–15; Rolley 1983, p. 106; Mattusch 1986, pp. 194–97; Barr-Sharrar 1990, p. 215; as well as Rolley 1994, pp. 288–89. See also N. 7 here above.

⁴⁴ Niemeyer 1960, pp. 37–39 (Werkstat I), pl. 2, figs. 5–7.

⁴⁵ The crest, the hands with the shield and the spear, and the feet are missing. However, the posture, the *peplos* folds, the scaly *aegis* and



Figure 36.22. Bronze Promachos statuette from the Acropolis. National Archaeological Museum in Athens, acc. no. 6455 (by A. Sideris, 2011).

Another workshop created Athenas with much more elaborated details, fine engraving and, now we can say, also with silver and copper inlaying.⁴⁶ The NAM statuette acc. no. 6455 (**fig. 36.22**) is a rather well-preserved example from this workshop, which shows the same scaly *aegis*, the same hair locks at the temple and the same biconvex massive hair with wavy lines, as on the Athena from Anticyra. The NAM Athena, acc. no. 6458 (**fig. 36.23**) has even more remarkable similarities, the curves forming the back of the goddess being the most striking ones, with only the hair being somewhat differently treated.⁴⁷ Niemeyer believed that both statuettes come from the same workshop as the NAM kouros/athlete acc. no. 6445 (**fig. 36.16**). All

the helmet type provide enough evidence to include it safely within the *Acropolis* series. Neugebauer 1951, pp. 47–48, pl. 23, no. 36.; Niemeyer 1960, p. 27 and nt. 203; as well as Tölle-Kastenbein 1980, pp. 237–38, pl. 166b, no. 42e.

⁴⁶ Niemeyer 1960, pp. 45–51 (Werkstat IV), pl. 3, figs. 11–12.

⁴⁷ Niemeyer 1964, pp. 20–21, pls. 9–10 dates them *ca.* 510 and 495 BC. respectively.



Figure 36.23. Bronze Promachos statuette from the Acropolis. National Archaeological Museum in Athens, acc. no. 6458 (by A. Sideris, 2011).

the more so, Claude Rolley extended this observation and attributed the entire group of Attic Late Archaic small bronze athletes to this particular workshop.⁴⁸ Our Athena seems to be an advanced creation of this workshop, but still somewhat earlier than the statuette dedicated by ‘Meleso’ (**fig. 36.12**), and therefore it should be dated in the years 490–480 BC., and in the later rather than the earlier half of this decade.⁴⁹ It is an outstanding Attic work of small-scale bronze sculpture, initiating the passage towards the Early Classical style, and although it still shows several Archaic conventions, what we see on her face is not the Archaic smile, but the severe and serene expression of a new style, born in the tumultuous decade of the Persian Wars.

How this work reached the sanctuary of Athena we do not know. Was it a commission from a wealthy citizen of Anticyra, or the dedication of a pious traveller who made a stop on his way to neighbouring Delphi? We cannot tell for sure. What we can tell is that it marks a point in

⁴⁸ Niemeyer 1964, p. 13; Rolley 1983, p. 106.

⁴⁹ Niemeyer 1964, p. 21 dates the Meleso Athena into the time soon after 480 BC. See also here above the N. 30.

time after which the Athenian influence in the northern shores of the Corinthian Gulf in general, and in Phocis in particular, becomes much stronger and more evident. This is also the point of a decisive turn in the art of small scale-bronzes when the Archaic trends recede and a new, more self-confident and idealistic style emerges.

Study of Casting Cores and Experimental Reconstruction of Two Bronzes from Sillene (Chianciano Terme, Italy)

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Abstract: The study of the clay contained inside two bronzes (a foot and a hand belonging to a statue for the worship of Apollo, dating back to the fifth century BC.), found in the location of Sillene, Chianciano, (Siena-Tuscany) has made it possible to determine that the clay found in the hand is an original casting core which consists of Pilocene sand, very similar to that found at Chianciano. An experimental reconstruction based on the use of this sand supplemented with animal hair has shown its effectiveness as a bonding agent in the making of bronze statues.

Keywords: Bronze statue, reconstruction, casting, Sillene, Italy.

Özet – Sillene’den (Chianciano Terme, İtalya) İki Bronzun Döküm Maçaları ve Deneysel Rekonstrüksiyon Çalışması: Silene, Chianciano (Siena-Toskana) Bölgesi’nde bulunan iki bronz içinde (İ.Ö. 5. yy.’a kadar uzanan Apollon’un ibadet heykeline ait bir el ve ayak) bulunan kil çalışmasında; eldeki kilin Chianciano’da bulunanlara çok benzeyen bir Pilosen kumu içeren orijinal bir çekirdek olduğunu belirlemeyi mümkün kılmıştır. Hayvan kılı ile desteklenmiş bu kumun kullanımına dayanan deneysel bir rekonstrüksiyon, bronz heykel yapımında bir bağlayıcı madde olarak etkinliğini göstermiştir.

Anahtar Kelimeler: Bronz heykel, rekonstrüksiyon, kalıba döküm, Sillene, İtalya.

Introduction

Between 1866 and 1867, in the Sillene region, one of the greatest archaeological discoveries of the Chianciano Terme territory took place. The first excavations brought to light the remains of a sacred area, of which a square-shaped forecourt was left, paved with cocciopesto (hydraulic lime with crushed bricks and pottery). Here some extraordinary fragments of statues in bronze were recovered. Later some inhumation graves associated with horses were discovered, interpreted as sacrifices in honour of the titular deity of the sanctuary. The temple may have been built in the early fifth century BC. by the legendary Etruscan king Porsenna after his return from the war against Rome, since the statues have been traced to divine images depicting Diana Nemorensis, otherwise unknown in Etruria. The local production of these artefacts seems confirmed by the close affinities of their hairstyle to that of a figure on a memorial stone, again found in Chianciano. In the following period, another divine image was uncovered in the sanctuary, depicted on a chariot decorated with small leaping dolphins, drawn by two horses yoked to a beautiful oxbow, terminating in an extraordinary griffin head. Given the presence of a crescent moon, the goddess

was identified with Diana in her nocturnal aspect or with Selene, the protectress of vegetation and freshly flowing waters. The location of the temple near a thick and wild forest, a short distance from a spring, would support this individuation. Furthermore the name of the goddess has been perpetuated to this day in the salutary spring of Sillene, showing the close ties between the deity and the worship of waters, particularly felt and practiced by the Etruscans.¹

Methods

Some earth samples were taken from inside a hand and a foot in bronze. This study attempted to determine their nature and origin by means of an optical microscope, polarised light microscope in thin section, scanning electron microscope (SEM), x-ray powder diffraction (XRD), comparisons with local earth and experimental reconstruction (figs. 37.1-2).

¹ Introduction by Giulio Paolucci, director of the Museo delle Acque di Chianciano Terme, whom I thank for his support to this study. Thanks also to Paolo Dell’Agnello, geologist from the Archaeological Association in Chianciano, for his help in selecting earths.



Figure 37.1. A bronze hand from Sillene (by A. Pacini, 2011).



Figure 37.2. A bronze foot from Sillene (by A. Pacini, 2011).

The earth inside the foot

The earth inside the foot had already been studied by Formigli and Schneider, who observed that ‘crystalline calcite, probably pulverised marble, was added as a temper to the clay’. Since in the territory of Chianciano there are areas rich in calcite and clay (**map 37.1**), the creation of the bronze in a local workshop, linked to the shrine of Sillene, had been assumed. The earth of the foot is poorly consistent: there are neither multi-layered structures nor clear evidence of firing. There are rocky fragments of different sizes, non-burned plants, fragments of charcoal and local fossils. According to an analysis with the optical microscope,² the earth is a sediment of non-purified clay and sand with crystalline calcite and rocky fragments of limestone. The clay underwent heating in an oxidising atmosphere (it is possible that the warming is due to a fire), and the calcite as well as plant additions came from ground of deposit (**fig. 37.3**). The indirect lost-wax casting process is proven by the inner surface of the bronze. There are drippings typical of liquid wax and scrape marks. You can see parallel streaks

² Microscope reading by Pasquino Pallecchi, Centro di Restauro di Firenze.

and the seam of a sheet of wax used to reassemble the foot (**figs. 37.4-5**).

Reconstruction of the foot

Two half shells of clay were imprinted on one leg, then wax panels 6.0 mm thick, as in the original, were applied inside the shells and smoothed with a warm iron spatula (**fig. 37.6**). This has left on the wax the same marks found on the original. The leg, complete with gating system, was filled with a mixture of plant fragments and soil rich in clay and calcite from the south-west of Chianciano, the same mixture as was used for the outer mould. Even after drying the mould already had developed many cracks. The firing, in up-draught wind, stoked kiln with wood as fuel, lasted eight hours, with a max. temperature of 650°C, measured on the surface of the mould, after which the form was left to cool inside the kiln until the next day (**fig. 37.7**).

Heating diagram (fig. 37.8a)

During the pour, the mould split and the cast was not successful (**fig. 37.8b**). The experiment showed that this type of ground is not suitable to cast bronze and confirms that the earth inside the foot is not ground of deposit.

The casting core of the hand

The earth inside the hand is very different.³ Gray at the centre and brick red near the metal, it is sandy, very fine, compact and homogeneous and harder than the foot’s (**fig. 37.9**). In the earth, a curious emerald green element was found, due to the filling of the hollow left from an organic element, by copper carbonate (**fig. 37.10**). The casting core of the bronze hand corresponds to silty-sandy clay (3) with added organic fibres (**figs. 37.11-12**). The grain size of the skeleton is fine, with a continuous range in size distribution from the matrix up to about 100 µm. Sporadic grains can reach about 240 µm.

Grains occupy about 20% of the area of the analysed sections (the fine matrix is most common overall), and have subangular to subrounded shapes. They are represented by monocrystalline fragments of quartz, feldspars, muscovite, biotite (also altered to chlorite) and sparry calcite. Rock fragments are subordinately present, including polycrystalline aggregates of quartz of probable magmatic origin, chert, microsparite/micrite (probably also corresponding to much altered microfossils), polycrystalline aggregates of quartz and feldspars of magmatic origin, micaschist and quartzite. Carbonate microfossils are scattered in the casting core. The matrix is mainly microcrystalline, containing a certain percentage of calcite (weakly marly clay). Very

³ Analysis of Sonia Mugnaini (Department of Environmental Sciences, University of Siena, Italy), whose contribution also concerns the comparison with the earth of the reconstruction of the hand.



Figure 37.3.



Figure 37.4. Liquid wax and scrape marks (by A. Pacini, 2011).

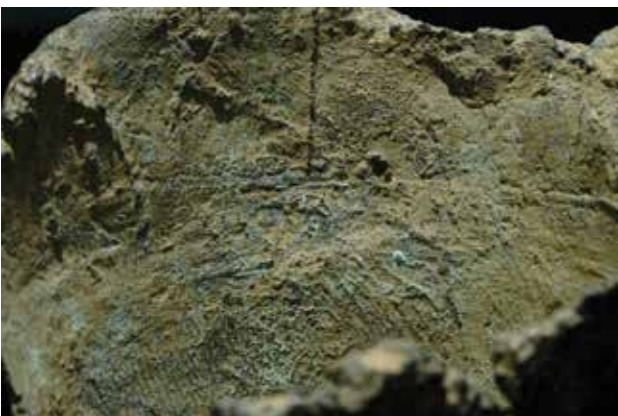


Figure 37.5. Liquid wax and scrape marks (by A. Pacini, 2011).

fine iron oxyhydroxides are diffused in the outermost reddish portion.

The addition of organic fibres can be deduced by the presence of numerous pores with a typically long and narrow (mainly around 50–80 μm) shape, with irregular



Figure 37.6. Sheet of wax used to reassemble the foot (by A. Pacini, 2011).



Figure 37.7. A stoked kiln (by A. Pacini, 2011).

inner imprints probably attributable to an animal origin. Tracks left by human hair in purposely prepared reference test pieces are comparable to those observed in the casting core of the hand (fig. 37.13). Heating effects are very weak in the inner part of the sculpture, and more marked in the outer part. The collected data suggest heating of at least 550°C–600°C but for relatively short times.

Reconstruction of the hand

The parting line at the centre of the core proves that the casting core was inserted into the hand of wax in a plastic state. The inner surface of the bronze shows corrugations and drippings, demonstrating that the hand of wax was obtained by slush cast in a mould (fig. 37.14). For the casting core, sandy clay (based on analytical comparisons with the original) taken near the Sillene spring of Chianciano was selected, purified and mixed with human hair. After the insertion of the chaplets, it was left to air dry (fig. 37.15), then the outer mould was made with the same mixture (fig. 37.16). Heating took

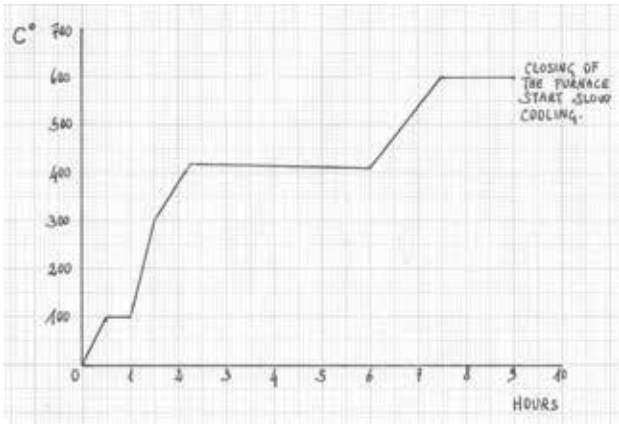


Figure 37.8a. Heating diagram (by A. Pacini, 2015).



Figure 37.10. A curious emerald green element (by A. Pacini, 2011).



Figure 37.8b. An unsuccessful cast (by A. Pacini, 2011).

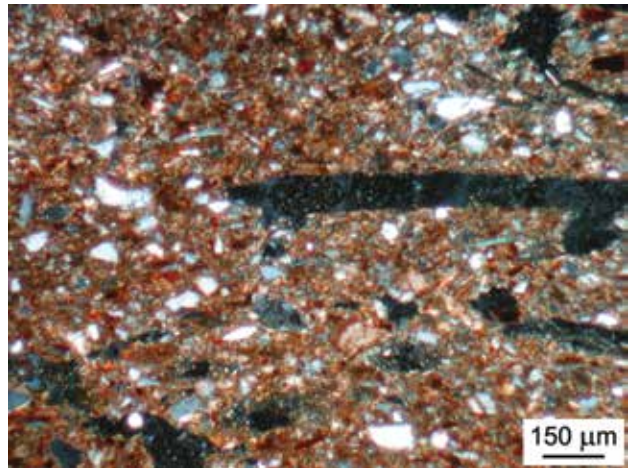


Figure 37.11. Organic fibres (by A. Pacini, 2011).



Figure 37.9. Casting core of the hand (by A. Pacini, 2011).

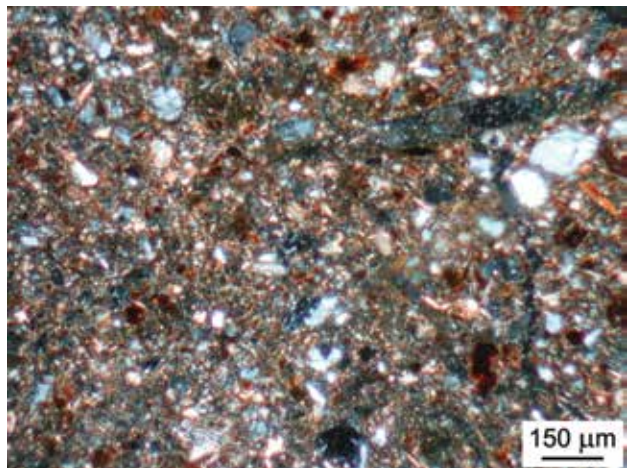


Figure 37.12. Organic fibres (by A. Pacini, 2011).

place in the same kiln used for the leg. The outer coating resisted well to the cast. A complete casting with a good surface was obtained (fig. 37.17). Unfortunately, due to the too-short firing of the mould, the former sticks used as runners did not burn completely, but only charred and

their fragments polluted the cast and partially blocked the passage of molten bronze, causing defects in the casting. This type of earth generally works very well as a casting core. The earth selected for the reconstruction presents mineralogical and petrographic characteristics

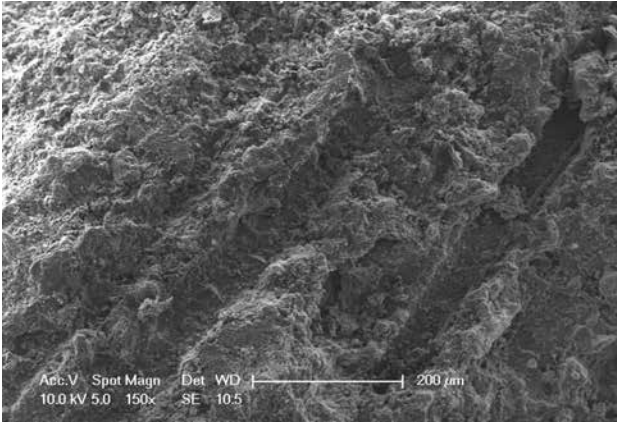


Figure 37.13. Casting core of the hand (by A. Pacini, 2011).

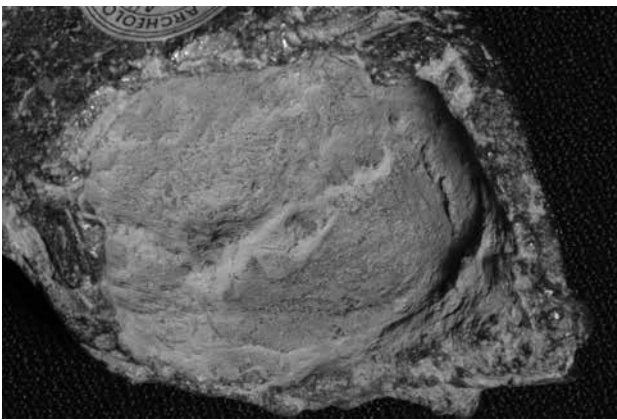


Figure 37.14. The inner surface of the bronze with corrugations and drippings (by A. Pacini, 2011).



Figure 37.15. After the insertion of the chaplets (by A. Pacini, 2011).



Figure 37.16. Outer mould (by A. Pacini, 2011).



Figure 37.17. A complete casting with a good surface (by A. Pacini, 2011).

very similar to those of the earth found in the hand, both in the general and particular characteristics of the various components. The differences (not to be considered substantial for the success in the reproduction of the work) are:

- the slightly larger size of the skeleton.
- the higher skeleton/matrix ratio.
- presence of a lesser amount of carbonate component (both in the skeleton and in matrix) and mica.

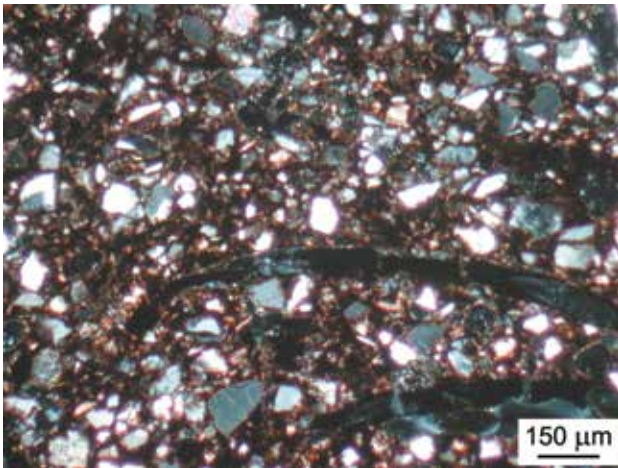


Figure 37.18. Great amount of fibre (by A. Pacini, 2011).

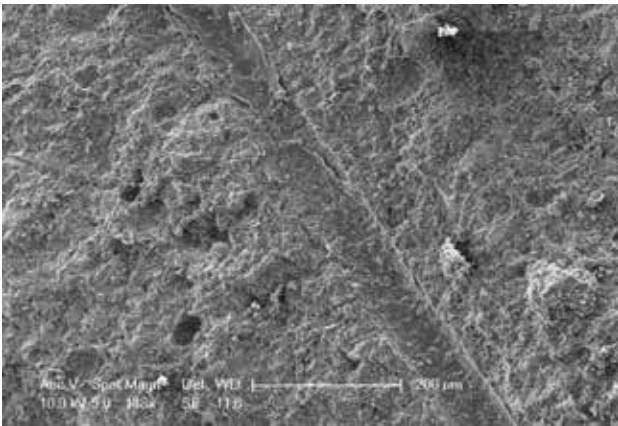


Figure 37.19. Great amount of fibre (by A. Pacini, 2011).

- slight differences in minor components of the skeleton (eg presence of rare fragments of dolomitic limestone, presumably cavernous limestone, not observed in the original).

The amount of hair added in the reconstruction turned out to be higher than in the original. After the cast, the core showed a very dark colour. The organic fibres were only partially burnt, leaving porosity accompanied by a large quantity of charred residues and diffused carbon. The thermal effects appear to be generally milder than in the original, mainly due to reduced heating time. In addition, the greater amount of fibre promoted a reductive environment leading to the observed difference in colour (figs. 37.18-19).

Conclusion

We cannot say with certainty that the bronze hand of the Archaeological Museum of Chianciano Terme was made with the earth of Sillene that we used for the reconstruction; however, this earth has proved to be very similar to the original, and to have characteristics suitable for the lost wax casting of bronze. In our experimental reconstruction,

we added a significant amount of hair in analogy to the amount of horse manure added in other experimental reconstructions. Experimental results show that the use of hair requires a kind of earth naturally possessing characteristics suitable for lost wax casting of bronze. In fact, hair has little binding power; it contrasts poorly with the shrinkage of the earth during drying, and is mainly used to vent the gases.

Remains of Bronze Equestrian Statue from Vani (Georgia)

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Abstract: During the course of many years of archaeological campaigns (1978–1989) conducted by the Centre for Archaeological Studies of the Georgian Republic at the Vani city-site in western Georgia, approximately one thousand bronze statue fragments and foundry remains of the Hellenistic period were discovered. They provide significant evidence for the procedures used to make large-scale bronzes and reveal one more peripheral centre of Greek bronze production. Among the identifiable fragments of bronzes, there are certain groups that could be attributed to definite categories. For this study, we have chosen a group of pieces which we regard as parts of an armoured equestrian statue. We possess fragments of the horse: fragmentary hoofs, ears and probably a tail; and the military clothing of the mounted figure: fragments of what was well-known in the classical world as ‘muscle’ cuirass, pieces of the breastplate, a part of the shoulder flaps and several sections of tasselled hem. There is also a gilded piece of a garment worn with the cuirass. Similar fragments come from Hellenistic and Roman contexts in different parts of the classical world. Insufficient data prevents us from being precise about the reconstruction of the cuirass, but the modelling of its details has parallels with those of the Late Hellenistic and Roman bronze and marble sculptures. The fact that cuirassed equestrian bronze statues have a long tradition in the Hellenistic and Roman world, and that Romans often adopted cuirasses of Hellenistic type, makes precise dating difficult. Under the circumstances, it is notable that all the Vani bronze fragments derived from a destruction context during the first century BC. Based on the brief examination of the whole identifiable complex of material, researchers assumed that they were cast during the city’s final period, somewhere in the second century BC. The discovery of the foundry remains on the central terrace of Vani – a casting pit with mould base inside and other casting debris; as well as some unusual technical features of Vani bronzes, suggest the idea that at any rate some of the bronze statues were produced locally.

Keywords: Bronze, equestrian statue, Hellenistic Period, Vani, Georgia.

Özet – Vani’den (Gürcistan) Bronz Atlı Heykel Kalıntıları: Gürcistan Cumhuriyeti Arkeolojik Araştırmalar Merkezi tarafından Batı Gürcistan’daki Vani şehrinde yapılan uzun yıllar süren arkeolojik çalışmalar sırasında (1978–1989), yaklaşık bin bronz heykel parçası ve Helenistik Dönem’e ait atölye kalıntıları keşfedildi. Büyük ölçekli bronz yapımında kullanılan yöntemler ve bir başka alanda daha Yunan bronz üretim merkezinin ortaya çıkarılması için önemli kanıtlar sunmaktadır. Tanımlanabilen bronz parçaları arasında, belirli kategorilere atfedilebilecek bazı gruplar vardır. Bu çalışma için, bir zırhlı binici heykelinin parçaları olarak gördüğümüz bir parça grubu seçilmiştir. Atın çeşitli parçalarına – kulakları, toynak parçaları ve olasılıkla kuyruğu ve atlı figürün askeri kıyafetleri: Klasik dünyada ‘kas’ zırhı olarak bilinen parçaları–göğüs plakasının parçaları, omuz kapaklarının bir kısmı ve taşlı etek kısımları vardır. Ayrıca zırhla birlikte giyilen bir giysinin yıldızlı bir parçası var. Benzer parçalar, klasik dünyanın farklı yerlerinde Hellenistik ve Roma kontekslerinden gelmektedir. Verilerin yetersizliği, hatıraların yeniden inşası konusunda kesin olmamızı önler, ancak ayrıntılarının modellenmesi Geç Hellenistik ve Roma bronz ve mermer heykelleriyle paraleldir. Verilerin yetersizliği, zırhın yeniden yapılması konusunda kesin olmamızı engellemekte ancak detaylarının modellenmesi Geç Hellenistik ve Roma bronz ve mermer heykelleriyle paraleldir. Zırhlı atlı bronz heykellerin Hellenistik ve Roma dünyasında uzun bir geleneğe sahip olması ve Romalıların sık sık Hellenistik tip zırhları benimsemesi kesin tarihlendirmeyi zorlaştırmaktadır. Bu koşullar altında, tüm Vani bronz parçalarının, İ.Ö. 1. yy.’ın tahrip tabakasından bağlamından ele geçmesi dikkat çekicidir. Tanımlanabilir tüm materyal grubunun kısa incelemesine dayanarak, uzmanlar, kentin son döneminde, İ.Ö. 2. yy.’da

kullanıldığını varsaydılar. Atölye kalıntıları Vani'nin merkezi terasında kalmaktadır- Vani bronzlarının alışılmadık teknik özelliklerinin yanı sıra, içinde kalıp tabanı ve diğer döküm kalıntıları olan bir döküm çukuru, herhangi bir oranda bronz heykellerin bir kısmının yerel olarak üretildiği fikrini ortaya koymaktadır.

Anahtar Kelimeler: Bronz, atlı heykel, Hellenistik Dönem, Vani, Gürcistan.

During the course of many years of archaeological campaigns (1978–1989) conducted by the Centre for Archaeological Studies of Georgian Republic at the Vani city-site in western Georgia, a great number of bronze statue fragments (the number of items amounts to a thousand) and foundry remains of Hellenistic period were discovered.

Many of the fragments are identifiable, beginning with the torso of a youth (1.05 m. h). Other identifiable fragments include a refined right knee and foot, a left hand grasping a lock of hair or animal's fur, a left ear, a neck, fingers, eyelids with traces of eyelashes, locks of hair, drapery, fragments of armour border with tassels, a serpent head and body parts, horse hoof fragments, as well as a number of patches that were used to conceal imperfections in the cast bronze.¹

Taking into consideration the different scale of the items, we can imagine the hypothetical number of human figures, as well as the total of animal sculptures. Most of the fragments were gathered from the central terrace of the city-site, at the Hellenistic levels: around the twelve-stepped altar and at the eastern slope of the site (among the remains of destroyed buildings). As the fragments seem to have been especially broken up, two equally acceptable explanations could be given: on one hand, it could have been an action against the local cult or ruler, and at the same time the damaged statues could have been further broken up with the intent to melt them for re-use.

Among the identifiable fragments, there are certain groups that could be attributed to definite categories. This time we have chosen a group of pieces which we regard as parts of an armoured equestrian statue. Of course, the fragmented nature of this material complicates its attribution to a definite sculpture with any certainty. Thus we cannot be fully confident in our choice. Nevertheless, the whole complex of evidence leads us to regard this group as the remains of an equestrian statue. This paper will discuss the fragments of the horse and the military clothing of the mounted figure. Only a few parts of the horse have survived: fragmentary hoofs, ears and probably a tail. One of the hoof fragments consists of three joining pieces (max. preserved dimensions 8.5 × 11.5 cm; th. 0.5 cm; light green patina with black spots). It represents the right side of the hoof (**fig. 38.1**); the hair on the coronet of the hoof is reproduced with two series of tufts, composed by incised strokes which meet at the centre of the hoof. The second

hoof fragment is of the same proportions and represents the left side of the hoof (max. preserved dimensions 7.0 × 10 cm; th: 0.3–0.4 cm). Part of a patch-hole is visible beneath the coronet (**fig. 38.2**). We cannot be absolutely certain whether this fragment belongs to the same hoof, but the probability that the fragment comes from the same horse is more likely. There are some other small pieces with the same treatment as the coronet hair (**figs. 38.3-5**). Although one of these (better preserved) hoof fragments are missing the final lower part, it has the same proportions as other hoof fragments (**fig. 38.3**; max. preserved dimensions 13.5–7-15 cm; w. 2.0 cm; light green patina). On the underside of the unshod hoof a quadrangular groove can be seen (**fig. 38.4**; dimensions 3.0 cm-3.4 cm) with traces of ferric oxide on the sides – it would have served as a socket for a metal tie. The horse seems to be about life-size. Similar fragments come from Hellenistic and Roman contexts in Olympia and other places in the classical world.² It is important to note that the style of modelling incised tufts of hair which we have on the hoofs from Vani is considered to be one of the notable features which betrays their Hellenistic origin.³ They are closely reproduced on the hoofs of the well-known Artemision horse dated to the second half of the second century BC.⁴ The archaeological context of the Vani statue fragments suggest the same date.⁵

From the same archaeological context came two fragmentary ears and a tail. Just the tops of both ears are represented. Their tips are somewhat effaced; hairs are incised along the edges of the ears (max. preserved dimensions first fragment 3 × 2.5 cm; second fragment 2.5 × 2.6 cm; th. 0.4 cm; light green patina, with black spots). The animal's ears are not pressed back as if it is galloping, but are erect and upright, indicating a static posture of the animal (**fig. 38.6**).

Such treatment of the ear seems to have been unchanged for a long time. We can find similar examples on horse statues from the Hellenistic and Roman periods.⁶ We conditionally consider the next fragment (**figs. 38.7-8**) to be a horse's tail, due to its resemblance to the bronze horse statue's tail from Monte Circeo which is believed to be a product of the Early Augustan age, though it also bears

¹ Lordkipanidze 1995, pp. 392–97, pl. 85; as well as Pirtskhalava and Kipiani 1986, pls. 44–46.

² Bol 1978, pl. 35, nos. 190–194, pl. 49, nos. 237–239. Bergemann 1990, pl. 48, nos. 61; and also Giunilia-Mair 2002, pp. 93–97, fig. 4.

³ Hemingway 2004, pp. 92–93.

⁴ Hemingway 2004, pp. 49–51; pp. 92–93, pl. 3.

⁵ Pirtskhalava and Kipiani 1986, p. 64.

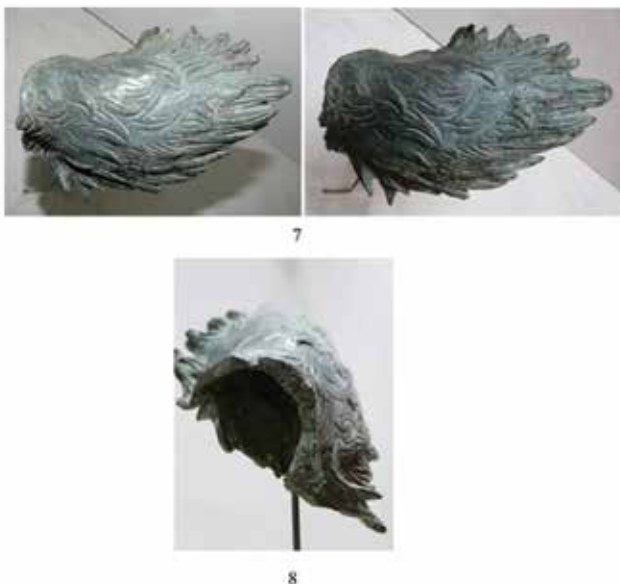
⁶ Bol 1978, p. 68, pl. 62, no. 371; Bergemann 1990, p. 103, pl. 7d; no. NP 50; and also p. 105, pls. 78–80, and 7b, no. NP 51.



Figures 38.1-5. Fragments of horse hoofs (by the authors, 2011).



Figure 38.6. Tops of horse ears (by the authors, 2011).



Figures 38.7-8. Parts of the horse tails (by the authors, 2011).



Figures 38.9-11. Fragments of breastplates from cuirass (by the authors, 2011).

Early Hellenistic features.⁷ The Vani horse tail fragment has two layers. The outer layer is characterised by hairy and wavy incised lines (fig. 38.7). The underlying layer is smooth and concave. The ends of the hair on the tail are uneven and cut in a jagged fashion (max. preserved dimension 14.5 × 9.5 cm; th. 0.3–0.5–0.8 cm; light green patina). At the narrow end of the fragment, a pipe-like cavity is outlined where presumably the tail was joined to the croup (fig. 38.8).

Now we turn to an examination of the armoured equestrian figure. We have only parts of military clothing worn by the statue, not parts of the human figure, as the latter are too fragmentary for attribution. A man's neck, three fingers, and other body parts have also been found, but we cannot attribute them to the equestrian statue with any certainty. We possess fragments of what was well-known in the classical world as a 'muscle' cuirass. These include three fragments of the breastplate (figs. 38.9-11), a piece of the shoulder flaps (fig. 38.13) and several sections of tasselled hem (figs. 38.14-15), as well as a piece of the garment worn with the cuirass (fig. 38.12). In addition, drapery fragments (figs. 38.19-20), two weight tassels (fig. 38.21) and a knot-like detail of a garment (fig. 38.18) have also been conditionally included in this group, in view of the fact that they may have belonged to a military cloak – often cuirassed figures have been found wearing such cloaks with fringes and, sometimes, with weight tassels.⁸

One of the three breastplate fragments has floral relief ornamentation, depicting the stem and a five-petal rosette, each leaf divided in two by incisions (fig. 38.9). Along the broken edge of the breastplate fragment a groove with incised dots is visible (max. preserved dimensions 6 × 5 cm; th. 0.4 cm; dark green patina). On the second

⁷ Bergemann 1990, pp. 108–10, N P 52, pl. 79.

⁸ Bol 1978, pl. 59, no. 339; Hallett 2005, pp. 132–33, pl. 81, no. 29; Livy (Titus Livius), p. 311.



Figures 38.12-13. Left: A fragment of a gilded tunic hem (by the authors, 2011). Right: A part of the shoulder flaps (by the authors, 2011).



Figure 38.20. Drapery fragments (by the authors, 2011).



Figures 38.14-15. Fragments of tasseled hem from cuirass (by the authors, 2011).

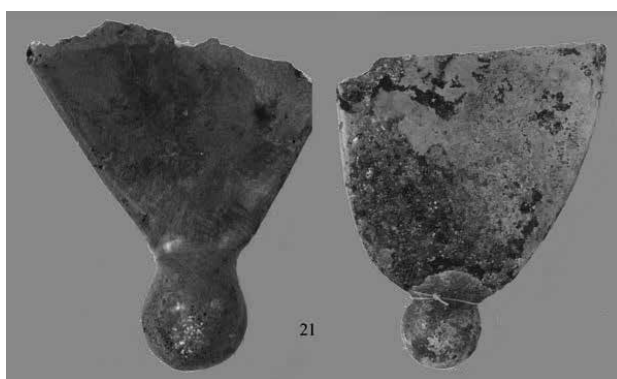
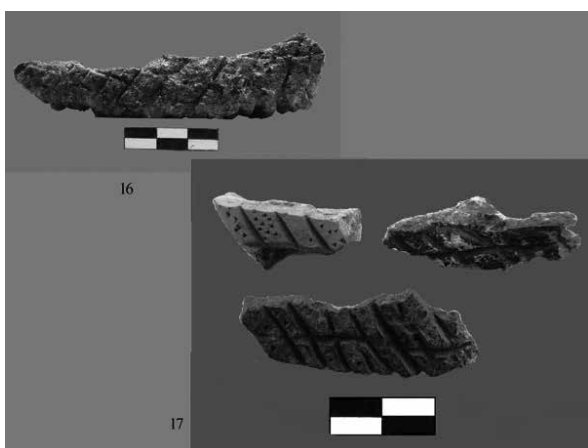
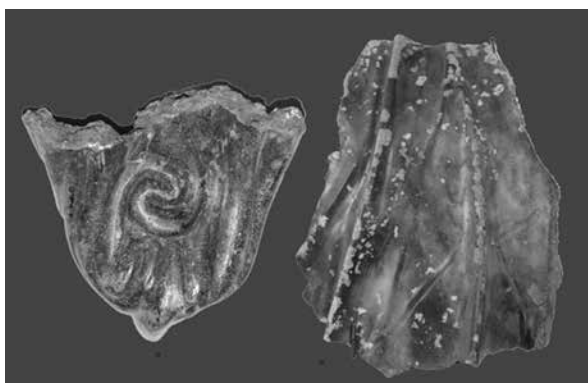


Figure 38.21. Two weight tassels (by the authors, 2011).



Figures 38.16-17. Lower parts of the cuirass' hem (by the authors, 2011).



Figures 38.18-19. A knot-like detail (by the authors, 2011).

breastplate fragment a similar groove, covered with incised dots and a rounded relief stem, can be seen (fig. 38.10; max. preserved dimensions 12.5 × 3.5 cm; th. 0.8 cm; dark green patina). The relief floral ornament on cuirass, as well as incised dots, was very popular motifs in antiquity.⁹ We can find similar fragmentary examples among the bronzes from Industria.¹⁰ The third fragment, in our opinion, may have belonged to the same category. It is composed of two pieces and it is decorated with an acanthus stem and leaf (fig. 38.11; max. preserved dimensions 14.0 × 8.0 cm; th. 0.2–0.5 cm). Like the previous two breastplate fragments, it is analogous to the Roman bronzes from Industria, namely on the breastplate fragment with a relief stem, covered with short, obliquely disposed incisions.¹¹

The next fragment comes from the tunic worn under the cuirass. Based on the characteristics described below, we believe the fragment comes from the hem of the figure's tunic (fig. 38.12). It is engraved with a geometrical design of two panels with alternating antithetic triangles and a bar between them (max. preserved dimensions 4.1 × 3.4 cm; th. 0.3–0.4 cm; light green patina). The opposing triangles, pointing inward, as well as the bar between them, are

⁹ Stemmer 1978, p. 7, pl. 1; and also Vermeule 1980, p. 14, fig.7, no. 11.

¹⁰ Mercado and Zanda 1998, pp. 116–17, pl. 67, nos. 76–77.

¹¹ Mercado and Zanda 1998, p. 117, pl. 67, no. 78.

gilded and have dotted circles within, while the outward pointing triangles are unglilded. The lower edge is also gilded. As the fragment becomes wider on the right hand side, it suggests that it may be the hem of the garment. This idea is prompted by a Roman bronze fragment with silvered triangles which is said to be a hem of a tunic, worn under the cuirass.¹² It is noticeable that the triangle's dimensions on both fragments coincide with each other (h.1 cm). So it seems quite possible that Vani fragment belongs to a cuirassed statue.

Another category of cuirass fragments is the remains of the shoulder flaps ending with tassels (max. preserved dimensions 8 × 9 cm; th. 0.3–0.5 cm; green and dark green patina). Three sections of tassels are preserved (**fig. 38.13**). The tassels are slightly inclined aside. A double bar, covered with opposite short oblique incisions, marks out the strips from the tassels. The shoulder flaps characterise military clothing beginning with the Hellenistic period and remained unchanged for years. We can see the same type of shoulder flaps on bronze and marble cuirassed statues and their fragments from the Hellenistic and Roman periods.¹³ The form and iconographic detail of cuirassed statues is said 'to have begun in the Late Hellenistic period with an art that is Greek'.¹⁴ The Vani fragment is quite similar to the shoulder flaps of a bronze torso from an equestrian statue wearing a Hellenistic-type cuirass in the Metropolitan Museum of Art.¹⁵ Such shoulder flaps are said to be Hellenistic in style.¹⁶ As a consequence our shoulder flaps fragment is of special interest, because it comes from the archaeological context of the first century BC.

The next category of cuirass fragments consists of pieces of tasselled hem (**figs. 38.14–15**). The first one represents a section of a fringed hem composed of twisted interlacing tassels (**fig. 38.14**). Above the tassels there is a horizontal twisted double bar. From below, the hem is cross-hatched, with enclosed incised triangles imitating the ends of the tassels (**fig. 38.16**; max. preserved dimensions 10 × 5 cm; th. 0.3–0.5 cm; base w. 2.0 cm). Three other fragments are also parts of the lower part of the cuirass' hem (**fig. 38.17**) and, like the above-mentioned fragment, they have the same cross-hatch design for depicting the tassels' tips (max. preserved dimensions 2.5 × 3.2 cm; base's w. 0.6–0.7 cm).

Insufficient data prevents us from being precise about the reconstruction of the cuirass, but the modelling of the tasselled hem clearly displays its parallels to those of Late Hellenistic and Roman bronze and marble sculptures.¹⁷

Cuirassed equestrian bronze statues have a long tradition in the Hellenistic and Roman world. Romans often adopted cuirasses of Hellenistic type. This fact makes it difficult to date preserved examples with precision. Under the circumstances, it is notable that the fringed hem fragment from Vani was found in the burned ruins of the so-called treasury next to the twelve-stepped altar dated to the first century BC.¹⁸

If our identification is correct, it appears that in the Late Hellenistic period at the Vani city site there stood, beside the figure of a nude standing youth and alongside bronze statues of many types,¹⁹ an armoured equestrian bronze statue, partly gilded. If that is the case, several questions arise: Who is represented by this statue? Who commissioned this statue? When was it cast, and who was the audience? Most of these questions remain unanswered.

As all the Vani bronze fragments derive from a destruction context (the first century BC.), we can determine when the statue was destroyed, but not the date of creation of the statue. Based on the brief examination of the whole identifiable complex of material, the scholars assumed that they were cast during the city's final period, somewhere in the second century BC.²⁰ The discovery of the foundry remains on the central terrace of Vani: a casting pit with mould base inside and other casting debris,²¹ as well as some unusual technical features of Vani bronzes, suggests the idea that at any rate a part of bronze statues was produced locally.²²

It is known that equestrian statues from the Hellenistic epoch in most cases depicted real personalities. In this period each statue had its specific occasion and purpose and could have had one of four main functions: cult, votive, funerary or honorific. We suppose that the honorific function was the main purpose of the Vani sculpture, based on our fragmentary evidence. The honorific function was an important category and these statues were almost always bronze. They were more political in purpose than made for art's sake.²³ Equestrian statues in armour, although few have survived intact, are said to have been common throughout the Hellenistic world. In Greece in the second/first century BC., equestrian statues were erected for Hellenistic rulers, their generals and for respected citizens, just as for high Roman persons.²⁴ Roman art directly continued the Hellenistic tradition, especially as far as cuirassed statues are concerned.²⁵ It is for this reason we have ruled out cult, votive, and funerary functions.

The fact that the Vani statue was gilded is an indication of the importance of the figure being represented and

¹² See reconstruction: Mercado and Zanda 1998, p. 116, pls. 66 and 74, no. 75.

¹³ Stemmer 1978, p. 126, pls. 1–3, etc.; Bergemann 1990, pl. 12, no. 4; pls. 28 and 48, no. 61; Hallett 2005, p. 133, pl. 81; Fedorova 1979, figs. 2b and 28e; D'Amato and Sumner 2009, pp. 38 and 135.

¹⁴ Vermeule 1968, p. 42.

¹⁵ Picón *et al.* 2007, p. 447, no. 211.

¹⁶ Vermeule 1968, pp. 41–42.

¹⁷ Bol 1978, p. 62, nos. 294–296; Vermeule 1980, fig. 7 and 11, no. 73; Stemmer 1978, pls. 1–3 etc.; Mercado and Zanda 1998, pp. 114–15, pl. 63.

¹⁸ Pirtskhalava and Kipiani 1986, pp. 63–64.

¹⁹ Mattush 1996, p. 216.

²⁰ Mattush 1996, p. 215.

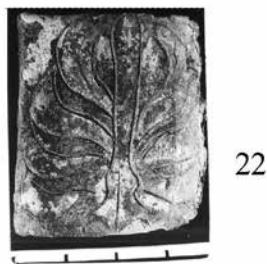
²¹ Gigolashvili *et al.* 2008, pp. 14–18 and 201–202.

²² Mattush 1996, p. 213.

²³ Smith 1994, pp. 9–10.

²⁴ Bergemann 1990, p. 57; Stemmer 1978, p. 139; Hallett 2005, pp. 43 and 144.

²⁵ Stemmer 1978, p. 139.



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Figure 38.22. A gilded fragment with engraved palmetto (by the authors, 2011).



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Figure 38.23. Fragments of gilded band with a row of engraved tendrils (by the authors, 2011).

its height of opulence.²⁶ Besides the gilded tunic hem fragment, we have some more gilded bronze pieces from the same archaeological context that cannot be attributed to any type of sculpture with any certainty. Those are two fragments of gilded bands with engraved floral ornamentation. On one fragment there is a palmetto (fig. 38.22). On the other fragment, consisting of two broken pieces, a row of repeating tendrils is depicted (fig. 38.23). This style of ornamentation is analogous to a band with similar ornamentation found on an Apulian ‘muscle’ cuirass of the fourth century BC.²⁷ Although examples of gilded statuary are quite rare before the Roman imperial era, some fragments from gilded statues of Hellenistic epoch are known to exist.²⁸

As for the gilded equestrian statue, we can mention the prior evidence of Roman gilded hoof fragments from rest of the Empire with the same modelling of coronet hair which we have on the horse hoofs from Vani.²⁹

Thus the whole complex of above-described items, when compared to similar fragments and whole equestrian statues from antiquity, supports our view that the fragments came from an equestrian statue representing an important political or military leader.

Certainly, the person represented by this statue might not be identified correctly, especially as there is not a statue base found in the whole-large though fragmentary-collection of the variety of statues of Vani excavations. But if we think back to Kolchis, whether a vassal kingdom or satrapy at the turn of the second/first century BC., in actual fact it was subordinated to the military ambitions of Mithridates VI.³⁰ Numerous monuments honouring Mithridates VI were erected beyond the boundaries of his kingdom.³¹ Under the circumstances it should be taken into consideration that according to some scholars the impact of the Pontic religion was great in Kolchis:³² a Dionysos temple was built at the turn of the second/first century BC. in Vani. In its ruins parts of an elaborate bronze vessel relief heads of the cohort of Dionysian deities shown in the Pergamum plastic style were found.³³ The time of the building of the sanctuary coincides with the surge of Mithridatic propaganda of the political and ideological exploitation of Mithridates as Dionysos after the triumph of the king in Pergamum in 88 BC.³⁴

There might be questionable points in the presented article, but further finds and research will hopefully particularise the versions given in it, confirming or denying them.

²⁶ Hemingway 2004, p. 61

²⁷ Cahn 1990, pp. 116 and 122, fig. 4.

²⁸ Mattush 1996, pp. 28, 125 and 128. Oddy *et al.* 1990, pp. 105–21.

²⁹ Giunlia-Mair 2002, pp. 93–97, fig. 4.

³⁰ Lordkipanidze 2010, pp. 229–38; Lordkipanidze 1970, pp. 17–24 and 26; and also Maksimova 1956, p. 195.

³¹ Højte 2009, pp. 155–57; Kreuz 2009, pp. 132 and 133.

³² Lordkipanidze 1970, p. 124; Saprikin 2009, pp. 250–51.

³³ Lordkipanidze 1972, pp. 30–34, figs. 138–142.

³⁴ Saprikin 2009, pp. 250–51.

A Bronze Figurine of Actaeon from Slovenia

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Abstract: Among the not very numerous antique bronze statuary from Slovenia is a small bronze depiction of Actaeon. It was found in the coastal town of Koper, where it is kept in the Regional Museum, exhibited in the permanent collection. The circumstances of the find are not known: the statuette is said to have been found in the vicinity of the Palazzo de Belli in 1972, but no further information is given about any excavations or building works yielding such a special stray find. Although the statuette is not very well preserved, it is nonetheless evident that the work bears the mark of supreme craftsmanship. The composition of Actaeon and his two dogs is completely symmetrical and the figures are well proportioned. Despite the rough corroded surface, the detailing of the dogs' eyes and mouth, as well as the face and hair of Actaeon, are all still visible. Actaeon's cloak falls from his back and is wound around his left arm. His right arm is lifted above his head holding an elongated item, which could be interpreted as a hunting stick. The two dogs, one on each of his sides, are leaping at his hips with opened mouths in the instant of attacking. The statue was interpreted as a free-standing bronze statue with a cast base and was never fully researched or separately published. This paper seeks to change this and offer new insights about this stunning and extraordinary bronze object.

Keywords: Small bronze statuary, antiquity, Actaeon, Koper, Slovenia.

Özet – Slovenya'dan Actaeon'un Bronz Heykelciği: Slovenya'nın pek çok sayısız antik bronz heykelinin arasında Actaeon'un küçük bir bronz tasviri de bulunmaktadır. Bölgesel Müze'nin daimi koleksiyonunda sergilenen bu eser, sahil kasabası Koper'de ele geçmiştir. Bulgunun koşullarının bilinmediği, heykelciğin 1972'de Palazzo de Belli civarında bulunduğu söylenmektedir; ancak böyle özel bir tekil buluntuyu veren kazı veya inşaat faaliyetleri hakkında daha fazla bilgi verilmemektedir. Her ne kadar heykelcik çok iyi korunmasa da, yine de eserin en üst düzey işçilik işareti taşıdığı açıktır. Actaeon ve iki köpeğinden oluşan kompozisyon tamamen simetrik, figürler oldukça iyi orantılıdır. Pürüzlü aşınmış yüzeye rağmen, köpeklerin gözleri ve ağzının yanısıra Actaeon'un yüzünün ve saçının detaylarını görebilirsiniz. Actaeon'un pelerini sırtından düşer ve sol kolunun etrafına sarılır. Sağ kolu başının üstünde, bir av çubuğu olarak yorumlanabilecek uzatılmış bir eşya ile kaldırılmıştır. Her iki tarafında tasvir edilen iki köpek, saldırı anında ağız açık biçimde kalçalarına doğru sıçramaktadır. Heykel, döküm kaideli bağımsız bir bronz heykel olarak yorumlanmış ve hiçbir zaman tam olarak araştırılmamış veya ayrı olarak yayınlanmamıştır. Bu makale, bu durumu değiştirmeyi, bu çarpıcı ve olağanüstü bronz eser hakkında yeni bilgiler sunmayı amaçlamaktadır.

Anahtar Kelimeler: Küçük bronz heykel, Antik Dönem, Actaeon, Koper, Slovenya.

The Koper Regional Museum in Slovenia exhibits in its permanent exhibition a small bronze statue of a male figure fighting off two dogs, presumably Actaeon. It was found as a stray find in 1971 or 1972 in the area of the Palazzo Belli in Koper, but there is no other information about the circumstances or the context of the find.¹

Description

The composition of a male figure and two dogs (**fig. 39.1**) is cast together with a rectangular hollow profiled base which is open on the backside. The male figure (Actaeon) is depicted in a state of motion; the weight of the body is distributed between both legs, giving the observer a depiction of a person retreating, with the bent left leg just in front of the body and the bent right leg stepping

¹ Semi 1975, p. 11, fig. 19.



Figure 39.1. A male figure and two dogs (by V. Pintarič Kocuvan, 2011).



Figure 39.2. A vertical cylindrical tube (by V. Pintarič Kocuvan, 2011).

back. The figure seems to be naked, as one can notice the details of the belly-button and nipples, except for a cloak fastened at the chest with a buckle represented by a rectangular indentation falling along Actaeon's back and wound around his left arm. The right arm is raised just above the head and holds a tubular item, a sort of club or stick. The face of the figure is discernible, although quite corroded. At Actaeon's sides are two dogs, also depicted in movement, leaping on their rear legs at the figure's hips. The dogs stand just outside of the rectangular base on small protrusions spanning out of the front two base corners. Some of the detailing in the dogs can still be seen, *e.g.* the open mouths, the folded ears, and the eyes. Behind the figure is a vertical cylindrical tube, preserved to about 5.0 cm h., rising from the profiled base (fig. 39.2). The tube has a unitary cross-section throughout and does not have any visible indentations or incisions. Perpendicular to this tube is a roughly rectangular protrusion emanating from the figure's back. Although the surface of the small bronze statuette is quite corroded and therefore the details are not as easily recognisable, the triangular composition of the human figure and two dogs is nevertheless an exquisite work of supreme craftsmanship. The patina of the originally honey-coloured bronze is of a green-brown colour with smaller patches of light green patina at the folds. There

is no information about any conservation or restoration interventions on the statuette. The size of the composition is 13.5 × 9.5 × 7.0 cm.

Mythological background

Ancient written documents² mentioning Actaeon refer to three distinct, genealogically unrelated, characters. The three characters are also geographically separate: the Attic myth refers to a mythical king, the Corinthian to a beautiful youth killed in protection of a bacchanalian nobleman's lust, and the Theban or Boeotian myth to a skilled hunter torn to pieces by his dogs. According to Wilhelm Heinrich Roscher³ the most well known and most often mentioned and depicted myth of Actaeon concerns the son of Aristaeus and Autonoe from Thebes, who was raised by Chiron to be an avid hunter and often hunted in the woods with his pack of 50 hunting hounds; his tragic death supposedly occurred while he was hunting on the hills of Kithairon, when he was transformed into a stag by Artemis and his hounds tore him apart in a wild frenzy, not recognising their beloved owner.

² Compiled and summarised in Guimond 1981, p. 454.

³ Stoll 1884–1986, p. 214.

The reason for such a harsh punishment has been reported in several versions by different ancient authors, although Lamar R. Lacy concluded on the basis of collected evidence that it is not possible to distinguish chronologically between these versions, as was postulated by earlier commentators.⁴ The most likely and most of cited reason is that Actaeon saw the goddess Artemis bathing in a spring with her nymphs and thus had to be punished to preserve the goddess's virtue.⁵ According to another version, this occurrence was not an accident and Actaeon had set his sights on Artemis.⁶ Other authors mention that Actaeon wanted to marry his aunt Semele, who was Zeus' consort, so Zeus ordered Artemis to punish him.⁷ A fourth version suggests that Actaeon had boasted of being a better huntsman than Artemis herself and was thus punished for his insolence.⁸ The famous 50 hounds were all mentioned by name⁹ and were inconsolable after they had unwittingly killed their master, and only Chiron's statuary depiction of Actaeon could bring them to peace.

Interpretation

A well-established typology of Actaeon depictions¹⁰ divides these primarily according to whether or not the figure of Actaeon is depicted before or after his metamorphosis, with a further division according to attributes, type or scope of metamorphosis, defensive or defeated position, or allusions to the type of crime committed. It is worth noting here that according to Lacy, Actaeon's offense received little iconographic attention before the imperial era.¹¹

Due to the poor preservation of the bronze Actaeon statue from Koper, we cannot say with certainty, whether Actaeon is depicted before or after metamorphosis. It seems likely that the depiction may have had an elaborate hairstyle reminiscent of the Apollo 'hair bow', but perhaps even more likely is that Actaeon was depicted with small antlers or horns growing out of his forehead. Thus, the statue of Actaeon would fall into the typology's category D: Actaeon with a human head and characteristics of a stag.¹² However, there is no doubt that Actaeon is depicted in a defensive position and not yet defeated in his lethal struggle. The cloak Actaeon is wearing has no discernible features of a deer skin, and is thus interpreted as a *himation* clasped at the chest by what can be seen as a rectangular

buckle (executed by a rectangular indentation). His body is otherwise bare and the belly-button and nipples can still clearly be seen.

Several known depictions are very close or similar to the small bronze Actaeon statuette from Koper, although the highly symmetric composition and quality of the statuary depiction are as yet unparalleled. From the most comprehensive study on Actaeon depictions in *LIMC*,¹³ we can single out some similar or related depictions, e.g. a gem¹⁴ from the Kunsthistorisches Museum in Vienna depicting Actaeon brandishing a stick in self-defence against two dogs; however, Actaeon has no characteristics of a deer in this depiction and while the figure has a cloak on the left arm, this hand once held an arrow according to interpretation. A very similar gem with an almost identical depiction of Actaeon is kept in the National Museum of Georgia,¹⁵ but the figure here has undergone a transformation, as horns are visible on its head, and is, therefore, closer in type to our discussed statuette. A relief from the Glyptothek in Munich depicts a standing Actaeon with antlers brandishing a *pedum* to defend himself against two dogs; the bearing and stance of the figure is in fact very similar to the Actaeon from Koper, as the figure is seen withdrawing backwards from the two attacking dogs, while swinging a stick above his head.¹⁶ The same defensive position of the body can be seen in the stone statue in the round from the British Museum in London,¹⁷ although this depiction of Actaeon with antlers fending off two dogs has an animal skin instead of a *himation*, which is in accordance with some authors' beliefs that Artemis had not in fact transformed Actaeon into a deer, but only covered him with a deer hide.¹⁸ Furthermore, two Italic vase paintings can be considered analogous to the small bronze Actaeon statuette from Koper; these are a vase from Cambridge¹⁹ and from Taranto.²⁰ However, vase paintings usually depict a wider range of figures appearing with various functions in the myth, e.g. Artemis and the nymphs.

Notwithstanding the quality of the Actaeon statuette from Koper, there are also some other depictions of the Greek Actaeon myth from Slovenia and its immediate vicinity.²¹ As well as a partially preserved funerary monument immured in a tower wall in Poetovio (present-day Ptuj in Slovenia) with a fragmentary depiction of Actaeon,²² another limestone tombstone kept in the National Museum of Slovenia in Ljubljana with a depiction of an antlered human figure and dog has recently been convincingly interpreted as a depiction of Actaeon by Marjeta Šašel

⁴ Lacy 1990, pp. 27–28.

⁵ Apollodorus, *Bibliothèque* 3, 4, 4; Apuleius, *Metamorphoses* 2, 4; Claudius, *In Rufinum liber secundus* 418–420; Dio Chrysostom 37, 33; Hyginus, *Fabulae* 181; Lucian, *Dialogi deorum* 16, 2; Fulgentius, *Mythologiae* 3, 3, 709; Nonnus of Panopolis, *Dionysiaca* 5, 287–551; Ovid, *Metamorphoses* 3, 138–252; Ovid, *Tristia* 2, 103–108; Pausanias 9, 2, 3; Seneca, *Oedipus* 751–763; Statius, *Thebais* 3, 201–205.

⁶ Hyginus, *Fabulae* 180; Nonnus of Panopolis, *Dionysiaca* 5, 432–441, 509–519.

⁷ Akusilaos in Apollodoros l.c., Stesichoros in Pausanias 9, 2, 3

⁸ Euripides, *Bacchanalia* 337–340; Diodorus of Sicily, *Bibliotheca Historica* 4, 81, 4–5.

⁹ Hyginus, *Fabulae* 181; Ovid, *Metamorphoses* 3, 206; Aeschylus in Pollux, *Onomasticon* 5. 47; Apollodorus, *Bibliothèque* 3, 4, 4.

¹⁰ Guimond 1981, p. 455.

¹¹ Lacy 1990, p. 26.

¹² Guimond 1981, pp. 458–61.

¹³ Guimond 1981, pp. 454–69.

¹⁴ Guimond 1981, p. 456, no. 12.

¹⁵ Guimond 1981, p. 460, no. 58.

¹⁶ Guimond 1982, p. 458, no. 35.

¹⁷ Guimond 1981, p. 458, no. 38.

¹⁸ Guimond 1981, p. 467, no. 26–33; stesichoros in Pausanias 9, 2, 3.

¹⁹ Guimond 1981, p. 458, no. 45.

²⁰ Guimond 1981, pp. 458–59, no. 46.

²¹ Guimond 1981; as well as Koch 1993, pp. 73–74; and 92.

²² Conze 1875, p. 11, pl. 7, no. 2; as well as Guimond 1981, p. 20.

Kos.²³ From the territory of present-day Austria two monuments have been preserved with depictions congruous with the Actaeon myth; a marble slab depicting an antlered human figure attacked by three dogs is immured in the parish church in Pöchlarn,²⁴ while another marble relief is presently kept in the Museum Carolino Augusteum in Salzburg and represents the kneeling horned hero attacked by a dog.²⁵ Two other representations of Actaeon are known from Hungary, one from Komárno and another from Székesfehérvár.²⁶

Conclusion

There is in fact little doubt that the small bronze statuette from Koper represents Actaeon. Questions have been raised as to its authenticity, yet there is little evidence to suggest that the statuette is not authentic, as it has been shown to adhere to the general iconographic types governing depictions of this Greek myth; nevertheless, a Renaissance or Baroque origin of the statuette cannot be completely disproven, although the author of the present paper has found absolutely no analogies to support this hypothesis. The dating of the statuette remains elusive as the iconography of the depiction offers little or no basis for a more precise dating; nonetheless, we are inclined to agree with the dating of the statuette into the imperial period, partly due to the fact that the figure is represented as using a *pedum* instead of a weapon (*e.g.* sword or spear),²⁷ and partly considering the general historical framework of Koper itself.²⁸ Although a precise dating into the first century BC. or the Augustan period was suggested by Semi, this is in our opinion somewhat too optimistic.²⁹

²³ Šašel Kos 2010, pp. 175–86.

²⁴ Ubl 1979, p. 59, pl. 24, no. 56.

²⁵ Glaser 1997, p. 55, pl. 29, no. 37.

²⁶ Erdélyi 1974, pp. 207–208, fig. 198 (komárno), fig. 199 (székesfehérvár).

²⁷ Guimond 1981, p. 467.

²⁸ See *e.g.* Šašel 1989, pp. 5–14; Zupančič 1989, pp. 15–20; as well as Cunja 1989, pp. 21–28.

²⁹ Semi 1975, p. 11.

Regional Workshops for Bronze Manufacturing Along the Danube Limes in the Province of Upper Moesia (Serbia)

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Abstract: The production and distribution of metal objects, primarily copper alloys, played an important role in the economy of Upper Moesia. This is documented by a large number of bronze objects found at sites within the Danube Limes. Strong local traits in manufacturing objects of various groups and purposes signify a highly developed level of production. There are few architectural remains, however, which can be identified as workshops. However, it is beyond any doubt that from the second until the fourth century in this area, as well as in other provinces, workshops or *fabricae* were active in towns, civilian settlements next to fortresses, and even within the military forts. The biggest centres of bronze production were the towns of *Singidunum* and *Viminacium*, and most probably the forts of *Lederata* and *Pontes*. It should be taken as fact that at the fort of *Diana* at the Djerdap Limes several types of bronze objects were produced. This is testified by workshop finds such as unfinished *fibulae*, as well as moulds, crucibles, bronze and lead dross, ingots of pure copper, and tools. There existed diversified production lines at Diana and the manufacture of *fibulae* was one of them.

Keywords: *Fibulae*, copper alloy, mould, productions, workshops, Upper Moesia.

Özet – Yukarı Moesia Eyaletinde (Sırbistan) Tuna Limesleri Boyunca Bronz Üretimi için Bölgesel Atölyeler: Öncelikle bakır alaşımları olmak üzere metal objelerin üretimi ve dağıtımı, Yukarı Moesia ekonomisinde önemli bir rol oynamıştır. Bu durum, Tuna sınırındaki bölgelerde çok sayıda bronz obje ile belgelenmiştir. Çeşitli grup ve amaçlara sahip objelerin üretiminde güçlü yerel özellikler oldukça gelişmiş bir üretim düzeyini göstermektedir. Ancak, atölye olarak tanımlanabilecek az sayıda mimari kalıntı vardır. Bununla birlikte, 2. yy.'dan 4. yy.'a kadar bu bölgede ve diğer eyaletlerde atölye çalışmalarında veya fabrikada, kasabalarda, kalelerin yanındaki sivil yerleşim yerlerinde ve hatta askeri kaleler içerisinde etkin olduğu şüphesizdir. En büyük bronz üretim merkezleri *Singidunum* ve *Viminacium* kasabaları ve muhtemelen *Lederata* ve *Pontes* kaleleriydi. Djerdap Limes'teki Diana kalesinde, çeşitli türlerde bronz objelerin üretildiği bir gerçektir. Bu durum, bitmemiş *fibulaların* yanı sıra kalıplar, potalar, bronz ve kurşun cürufaları, saf bakır külçeleri ve aletler gibi atölye bulguları ile ifade edilir. Diana'da çeşitlendirilmiş üretim çeşitliliği vardı ve *fibula* üretimi bunlardan biriydi.

Anahtar Kelimeler: *Fibula*, bakır alaşımı, kalıp, üretim, atölyeler, Yukarı Moesia.

The production and distribution of metal objects, primarily that of copper alloy ones, played an important role in the economy of the Upper Moesia province. This is documented by a large number of copper alloy objects found at sites within the Danube limes. Strong local traits in manufacturing objects of various groups and purposes mark this undoubtedly developed production.

Unfortunately, the location of copper alloy object workshops in the territory of the Roman province of Upper Moesia and in the Djerdap Limes on the Danube are still based on assumptions, due to the lack of architectural remains which could be defined as buildings which hosted

workshop activities. However, it is beyond any doubt that from the second until the fourth century in this area, as well as in other provinces, workshops *fabricae* was active in towns, civilian settlements next to fortresses and even in the military forts. The biggest centres of copper alloy object production were the towns of *Singidunum* and *Viminacium*, and most probably the forts *Lederata* and *Pontes*. It should be taken as fact that at *Diana*, a fort at the Djerdap Limes, several types of copper alloy objects were produced. This is testified by finds relevant to the existence of workshops: semiproducts of *fibulae*, moulds, crucibles, copper alloy, and lead dross, ingots of pure copper, tools, etc. Diversified production lines

existed at Diana and the manufacturing of *fibulae* was one of them.

Before the arrival of the Romans, there was no tradition of settling in towns within the Upper Moesia Province. Its natural borders ran along the Danube where the military and civil zone was established. Military camps along the Danube were established with *canabae* for merchants, artisans and families of soldiers. *Margum* (Dubravica by Orašje) also enjoyed the status of town in addition to *Singidunum* and *Viminacium*.

The end of the first and the beginning of the second century AD witnessed intensive constructions of military fortifications for deploying legions, parts of legions or auxiliary troops as well as stations along the roads. The Roman border system at the Danube and in the Upper Moesia consisted of a line of fortifications and watch towers hosting smaller and larger units and stretching from *Singidunum* to *Aquae*. Larger fortifications (*castella*) eastward from *Viminacium* were *Lederata* (Ram), *Pincum* (Veliko Gradište), *Novae* (Čezava), *Taliata* (Donji Milanovac), *Diana* (Karataš), *Pontes* (Kostol), *Egeta* (Brza Palanka) and *Aquae* (Prahovo). Auxiliary units or cohorts were deployed in these fortifications.¹ The economic life in the province is not easy to define. It is also difficult to reconstruct details of the economic situation in the province, with exception of the mining activities for which epigraphic and archaeological documented finds exist, such as inscriptions, lead ingots with stamps, coins minted in the vicinity of mines, mine galleries, and slag.² Pottery production is attested by kiln finds on sites.³

Either the development of artisans' activities, in particular the production of metal objects, in Upper Moesia was on a smaller scale, or this perception is a result of lack of adequate researches conducted. The abundance of metal objects, in particular those made of copper alloys found on sites and kept in museum collections, support our understanding that this kind of production was developed and that the existence of workshops and their organisation was in accordance with general economic factors and principles as present in other provinces of the Empire. Tons of copper alloys used in different types of workshops, either military or civil, were needed for a developed and effective organisation of metal objects production, in particular for the needs of the army.⁴

Viminacium, the capital of the province, must have been an important production point for all copper alloy products including the more luxurious ones. It should be noted, though, that until now only necropolises were researched and they can not provide a clear insight into the circulation of objects across the town and the camp. One of the points could also be *Margum*, where until now only smaller-scale

excavations of the *thermae* have been undertaken. Absence of this kind of objects in *Singidunum* is explainable by its location under the modern city.

However, the best (or at least the only) indication of this kind of production activity and artisan workshops is found in the Iron Gate (Djerdap) part of the Limes. Certain indications of artisans' activities were noted in the fortifications of Boljetin and Saldum. Next to the clay kilns in the Boljetin fortification, there were discovered five kilns determined as kilns for smelting metal. According to its researcher, the 'low kiln tops would not allow reaching high temperatures, which would make lead the only metal which could be melted in them', and furthermore, "many pot parts from this layer were mended by lead being simply poured over."⁵ In the fortification of Saldum, tongs with double 'mould' in shape of *amphora* have been discovered.⁶

At present we can only argue based on the material discovered that at the military fortification at *Diana* there were workshops active within the fortification (fig. 40.1). A special attention has been given for determining and locating workshops.⁷ This is testified by finds relevant to the existence of workshops: semi-products of *fibulae*, moulds, crucibles, copper alloy and lead dross, ingots of pure copper, tools, etc. (figs. 40.2-5).⁸ There existed diversified production lines at *Diana* and manufacturing of *fibulae* was one of them.

This was a workshop within a fortification and its purposes were varied. Judging by the finds including semi-products of *fibulae*, based on a T-*fibula* (figs. 40.6-7), the spiral of *fibula* and pin of a *fibulae*, we can say that various *fibulae* types were manufactured (figs. 40.8-9). Other parts of jewellery were found such as bracelets (fig. 40.10) and decorative objects. There is an interesting clay mould for casting copper alloy appliques representing a Medusa (fig. 40.11). An appliqué of Medusa has been discovered and it fully matched the mould (fig. 40.12). One of the most precious finds was a crucible (fig. 40.13) of red clay (dimensions h. 2.4 cm, diam. 6.8 cm), which could contain 4 ml of copper alloy. The quantity was sufficient for casting a smaller *fibula* or a smaller size object.

It is still not possible to precisely define the outlines of the workshop, since they were dislocated across the site. It also is not possible at the moment to determine if this is a workshop or rather a room with a working place for an artisan producing various objects of copper alloys. One of the possibilities is that the workshop at *Diana* worked for the army and manufactured objects required by soldiers. Chronologically, the finds are dated from the second to the end of the third century.

¹ Petrović and Garašanin 1996, pp. 15 and 18.

² Dušanić 1980, pp. 7–57.

³ Mirković 1968, p. 140; as well as Cvjetičanin 2000, pp. 245–54.

⁴ Giunilia-Mair 2000, p. 108; Grafis 1994, pp. 10–12, 39–40 and 45; as well as Schneider 1992, p. 72.

⁵ Zotović 1984, pp. 219, t. ii

⁶ Jeremić 2009, p. 175.

⁷ Benea 2002, pp. 31–32.

⁸ Ratković et al. 2009, pp. 987–92.

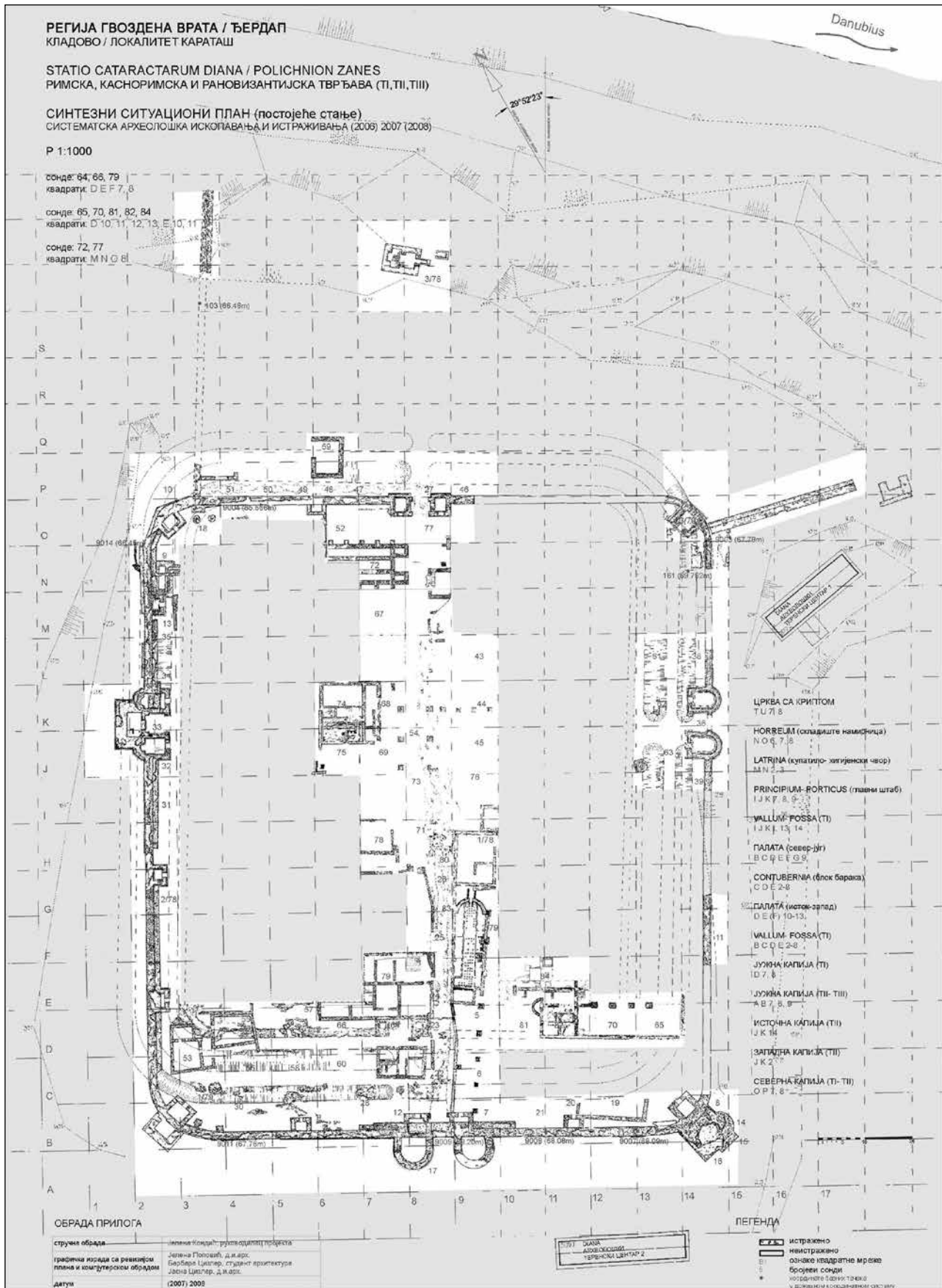


Figure 40.1. Plan of the Diana Fortress, a Roman *castrum* built in AD 100–101, located in Kladovo, in eastern Serbia (by D. Ratković, 2008).



Figure 40.2. A semi-product (by D. Ratković, 2011).



Figure 40.3. A semi-product (by D. Ratković, 2011).

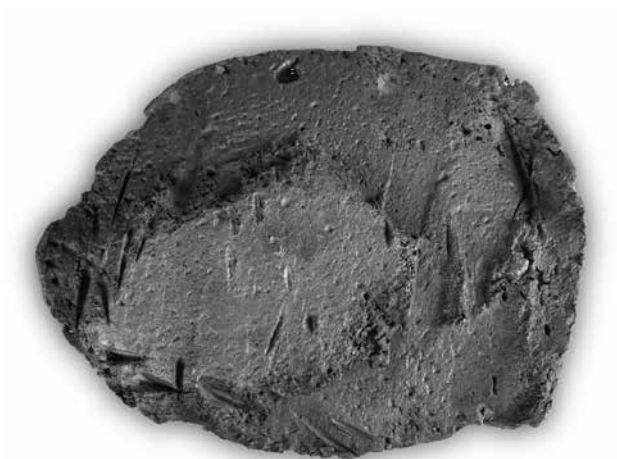


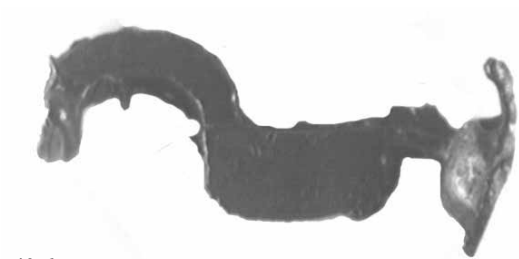
Figure 40.4. A semi-product (by D. Ratković, 2011).

Fibulae are typologically recognisable objects and as such reliable indicators of manufacture. At the same time, certain types of *fibulae* have easily traceable provenance based on their distribution area. Based on this, two forms of *fibulae* dominant at *Diana* belong to local forms.⁹ These are hinged *fibulae*, similar to Aucissa (fig. 40.14) and

⁹ Grbić 1996, pp. 87–91.



Figure 40.5. A semi-product (by D. Ratković, 2011).



40.6



40.7

Figures 40.6-7. Two T-*fibulae* (by D. Ratković, 2011).



40.8



40.9

Figures 40.8-9. Spiral and pin of a *fibula* (by D. Ratković, 2011).



Figure 40.10. A bracelet fragment (by D. Ratković, 2011).



Figure 40.11. A clay mould for casting applications of copper alloy depicting a Medusa (by D. Ratković, 2011).



Figure 40.12. An appliqué of Medusa (by D. Ratković, 2011).

Hinge *fibulae* with a ribbed bow (fig. 40.15). These forms occur in sites along the Danube, Romania (sporadically in the hinterland), Serbia (from *Singidunum*, via *Viminacium* up to *Aquae*) and sporadically in Bulgaria.¹⁰ They were developed as *fibulae* used by soldiers spanning the period of the second and second/third century in this area.

¹⁰ Ratković 2001, pp. 59–61; as well as Bojović 1983, pp. 22–25 and 46–48.

a

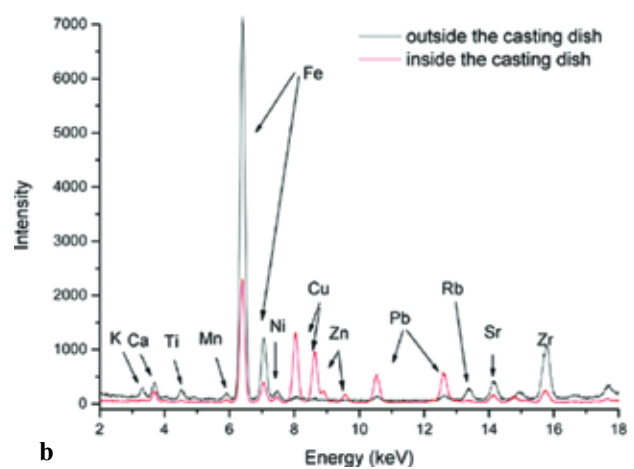


Figure 40.13a-b. A crucible of red clay (by D. Ratković, 2011).



Figure 40.14. Hinged *fibulae* (by D. Ratković, 2011).



Figure 40.15. Hinged *fibulae* with a ribbed bow (by D. Ratković, 2011).

Manufacturing workshops can be looked for in more than one centre, *i.e.* they were possibly manufactured when and where they were needed, similarly to the semi-products from *Diana*. It could be *Diana* itself where the largest number of these *fibulae* occurs in comparison to other forms of the first and third century.¹¹ Drobeta, *Singidunum* and *Viminacium* are the next sites determined as production centres for these *fibulae*. The analyses of these *fibulae* as well as of other kinds of material from *Diana* and other Upper Moesia sites showed that for products of the same type and size craftsmen re-melted metal they had at hand.¹² The situation was the same in the region of *Venetia*, *Histria* and probably Illyria.¹³

As an indicator of production activities in the hinterland of the Iron Gate (Djerdap), we can examine a heptagon marble mould shaped as a prism with several matrices or negatives (fig. 40.16).¹⁴ The mould was a stray find from Kučevo, on the slopes of the Homolje Mountains in the vicinity of Krakulu Jordan, an important smelting centre of the third and fourth century AD (map 40.1). It lies between the auriferous waters of the rivers Pek and Brodice southwards of the Danube. This smelting centre was of the greatest importance for the border on the Danube.¹⁵

The mould consists of seven negatives with diameters between 1.2 to 2.5 cm. The objects were cast from it using directly heated metal sheets. Higher temperatures caused the stone to oxidise and the outer side of the mould bears visible remains of red and brown colours as a result of oxidisation. It remains to be determined whether the mould was designed for the manufacture of various knobs, aprons or other objects.¹⁶ We have not found a direct analogy for the mould, but stone moulds from Drobeta, which were also devised for casting small objects, bear significant similarities in motif to our mould from Kučevo.

In addition to the Iron Gate Road on the Limes in the hinterland of the Danube, a network of roads connected the nearby ore-bearing areas between Gradište (*Pincum*) and Donji Milanovac (*Taliata*) in the valleys of the Saška and Porečka rivers.¹⁷ There is no doubt this mould find offers elements for the study of production activities in this area. Besides, this kind of finds provides an opportunity to study forms and decorative relations between various types of objects. After comparing potentially utilitarian objects which could have been cast from this mould, it may be concluded that we might be dealing with a portable mould which could have served various needs of military units. Decorative motifs could have been used as a pattern for various needs.¹⁸



40.16



40.17

Figures 40.16-17. A pentagonal marble mould shaped as a prism with several matrices or negatives (by D. Ratković, 2011).

The long-lasting process of establishing workshops' activities in the Upper Moesia Limes could be compared in some aspects to the situation in the Limes in Retia.¹⁹ A great number of workshops in auxiliary *castella* have also been verified on the basis of objects which are decisive for determining a workshop: remains of lead and copper alloys used for models of semi-products, un-treated metal and waste. The problem in Retia occurred due to unresearched *castella* and a great number of objects kept in private collections. The remelting of objects and the destruction of clay moulds, as well as remelting copper alloy moulds for *fibulae* like those confirmed in Norfolk, England, may be the reason for the lack of finds in the Upper Moesian Limes.²⁰ In the neighbouring Rumania, on the left bank of the Danube, three production sites were

¹¹ Grbić 1996, pp. 87–91; Ratković 2001, pp. 59–60; as well as Ratković *et al.* 2009, p. 987.

¹² Giunlia-Mair 1996, pp. 48–63; as well as Giunlia-Mair 2000, pp. 5–42.

¹³ Giunlia-Mair 1996, pp. 48–63; Giunlia-Mair 2001, p. 18; as well as Ratković *et al.* 2009, p. 991.

¹⁴ Ratković 2009, pp. 255–69.

¹⁵ Bartel, Kondić and Werner 1979, pp. 129–49.

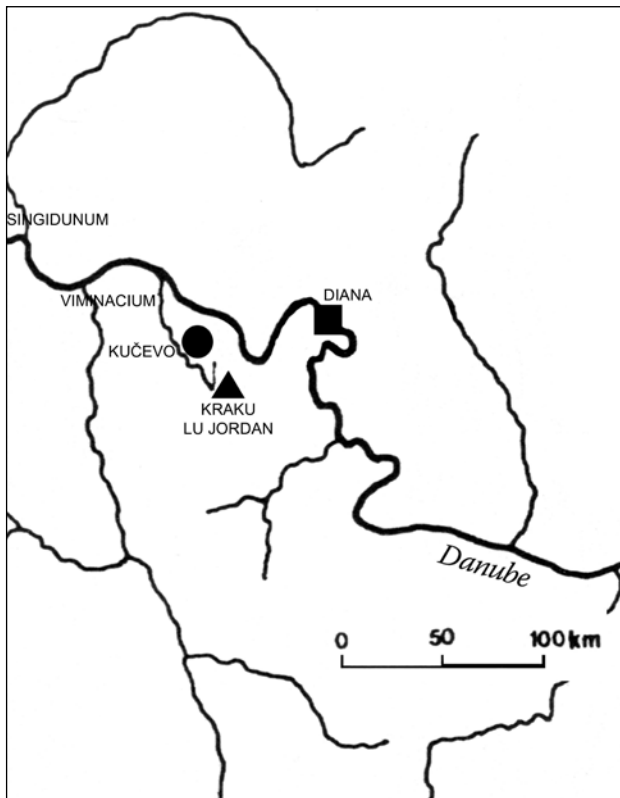
¹⁶ Bishop 1992, p. 81; as well as Benea 2002, pl. 13, nos. 8–9.

¹⁷ Petrović 1997, p. 121.

¹⁸ Bishop 1985, p. 15.

¹⁹ Gschwind 1997, pp. 607–38.

²⁰ Bayley, Mackreth and Wallis 2001, pp. 114–15.



Map 40.1. The vicinity of Krakulu Jordan, an important smelting centre of the third and fourth centuries AD in eastern Serbia (by D. Ratković, 2011).

marked in Drobeta, Dierna and Tibiscum.²¹ A workshop serving the needs of soldiers with buildings and artisans' products was discovered in Tibiscum.²²

This short survey is another attempt to reconstruct the manufacture of copper alloy objects. As for now, we have noted evident activity in fortifications in the Iron Gate Limes. This kind of activity was in service of the military deployed in the Limes area. However, as for larger workshops adjacent to the camps or in towns, we are still left without precise answers save the hypothesis that such activity was certain. I express my thanks to Jelena Kondić, site director at *Diana*, for providing us with insight into the copper alloy material from *Diana*. My thanks also go to Milica Stojanović and Velibor Antić.

²¹ Benea 2002, pp. 31–53.

²² Benea and Petrovsky 1987, pp. 226–35; as well as Benea *et al.* 2006, p. 154.

Two Roman Bronze Cultic Objects from the Timacum Maius (Eastern Serbia)

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Abstract: The site of Timacum Maius is located in eastern Serbia, some 20 km northeast of the great crossroads of Balkan routes, ancient Niš (Naissus). Timacum Maius was an important station on the Roman road from Lissus to Naissus to Ratiaria, which was also the shortest connection between the Adriatic ports and the central areas of the Balkans and the Danube. Archaeological investigations of the Roman settlement, covering more than 5 acres, began relatively recently, and so far we have unearthed a number of characteristic urban Roman architectural remains: baths, urban and main roads, drainage systems, as well as the representative structure with systems of floor and wall heating. During the season of 2010, an apparently unique bronze find was made of cult or votive character. It is a bronze *signum* with a representation of two roebucks on the hollow sleeve. Such finds are extremely rare in the Balkan provinces of the Empire, and so far we have found only a few similar examples. It is possible that the *signum* was in the inventory of the shrine, or that it belonged to the priest of Diana's cult. The object originates from the second half of the second to the third century AD. The second find came from the vicinity of the same building and is the right part of a circular bronze medallion, its rim decorated with a Greek meander, within which there is a temple façade, with a god or an emperor to its left. The refined production distinguishes this medallion from the usual representations of temples on Roman coins. Such medallions are found throughout the empire in all periods: they were carried in order to protect the owner against evil or in reverence to a certain deity.

Keywords: Bronze cult objects, Roman period, Timacum Maius, eastern Serbia.

Özet – Timacum Maius'tan (doğu Sırbistan) İki Roma Bronz Kült Nesnesi: Sırbistan'ın doğusunda yer alan Timacum Maius yerleşimi, Balkan-antik Niş (Naissus) yol güzargahı büyük kavşağının yaklaşık 20 km kuzeydoğusunda yer almaktadır. Timacum Maius, Lissus'tan Naissus üzerinden Ratiaria'ya kadar uzanan Roma yolundaki önemli bir istasyondur; aynı zamanda Adriyatik limanları ile Tuna'nın ve Balkanlar'ın merkezi bölgeleri arasındaki en kısa bağlantıydı. Son zamanlarda 5 dönümden fazla alanı kapsayan Roma yerleşiminin arkeolojik çalışmaları nispeten yakın zamanda başlamıştır ve şu ana kadar bir dizi karakteristik kentsel Roma mimari kalıntısı ortaya çıkarılmıştır: hamamlar, kentsel ve ana yollar, drenaj sistemleri ve bunların yanı sıra yerden ve duvardan ısıtma sistemi bulunan yapı elemanları. 2010 yılı sezonunda, kült ya da adak niteliğinde benzersiz bir bronz buluntu ele geçmiştir. İçi boş kollarında iki erkek karaca ile temsil edilen bronz bir *signum*dur. Bu tür buluntular İmparatorluğun Balkan eyaletlerinde oldukça nadirdir ve şu ana kadar sadece birkaç benzer örnek ele geçmiştir. *Signum'un* tapınağın envanteri olması veya Diana kültünün rahibine ait olması mümkündür. Eseri, İ.S. 2. yy. in ikinci yarısından İ.S. 3. yy. a tarihlenmek mümkündür. İkinci buluntu aynı yapının çevresinden ele geçmiştir ve üzerinde bir tapınak cephesi, solunda bir tanrı veya bir imparator tasviri bulunan kenarı meander ise süslü dairesel bir bronz madalyonun sağ kısmına aittir. Bu madalyonu ince işçiliği, Roma sikkelerinde bulunan tapınakların olağan temsillerinden ayırır. Bu tür madalyonlar imparatorluğun her döneminde bulunur: sahibini kötülöklere karşı korumak veya belirli bir tanrıya saygı göstermek için taşınırlar.

Anahtar Kelimeler: Bronz kült objeleri, Roma Dönemi, Timacum Maius, Doğu Sırbistan.

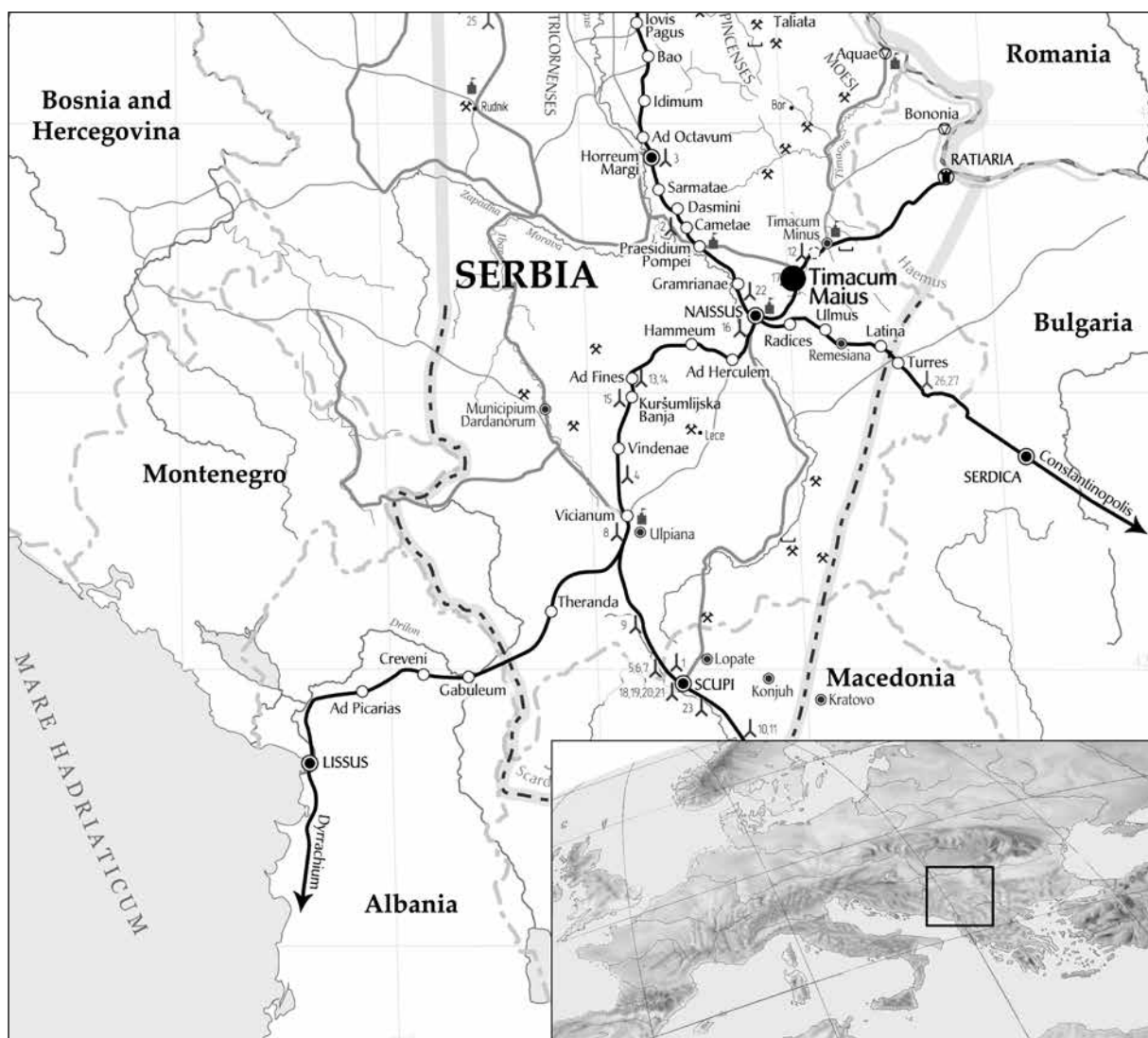


Figure 41.1. Places in Serbia referred to in the text (by the authors, 2011).

The archaeological site Timacum Maius is located in eastern Serbia, near the modern town of Svrlijig, some 20 km northeast of the great crossroads of Balkan routes at Niš, ancient Naissus.¹ Timacum Maius was an important station on the Roman itinerary road Lissus–Naissus–Ratiaria, which was also the shortest connection of the Adriatic ports with the central areas of the Balkans and the Danube (fig. 41.1).² Archaeological investigations of the Roman settlement, which stretched across more than 5 acres, began relatively recently, but so far we unearthed a number of architectural remains, which testify to typical Roman urbanisation: baths, urban and main roads, drainage systems, as well as the representative structure with systems of floor and wall heating.³

During the archaeological excavations of 2010, one representative Roman building was unearthed, unique in many ways, as a part of a larger structure. We have investigated so far two rooms, with the hypocaust system designated for warming the floors and walls. The hot air circulated by the warming channel, which had 13 pairs of ceramic *tubuli* which transported the heat to the floor and walls of the building.⁴ Based on numismatic findings we can assume that the Roman building dates from the first half of the second century AD, the time of Emperors Trajan and Antoninus Pius, and that it was in use until the Gothic invasions in the late fourth century. Throughout the research of 2010, one bronze piece of jewelry on a chariot was found beside the eastern wall of the representative building in a layer of ash and charcoal (fig. 41.2). In the vicinity of the same representative building was also discovered the right part of the large circular bronze medallion (fig. 41.3).

¹ Petrović 2007, p. 47.

² Petrović 2008, pp. 31–40.

³ Petrović and Filipović 2008, pp. 29–43; as well as Petrović and Filipović 2009, pp. 25–30. The archaeological excavation has been carried out by the Belgrade Institute for Balkan Studies and is funded by the Ministry of Culture, Media and Information Society of the Republic of Serbia.

The bronze figural *signum* has a central conical and hollow tube that looks like a ‘socket’, with a ring-shaped

⁴ Bouet 1999, pp. 39–66.

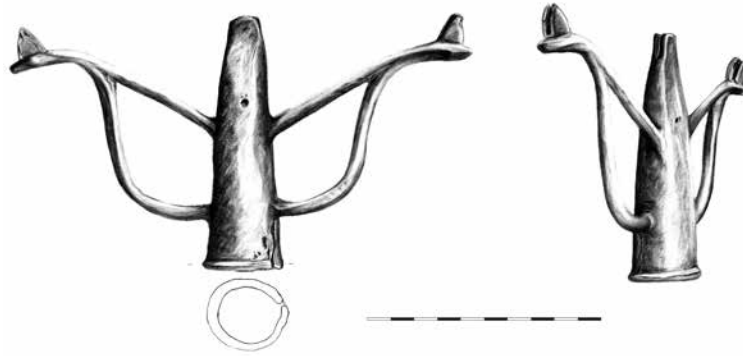


Figure 41.2. A bronze figural *signum* (by the authors, 2011).



Figure 41.3. Right part of a large circular bronze medallion (by the authors, 2011).

strengthened at the bottom. On the top of the flat ‘socket’ is a groove. On the ‘socket’ are two equal branches with representations of two roes. One branch is broken, and its top, the deer head, was found about 7 m away from *signum*. The heads of roes have one groove, as well as the top of the ‘socket’ with which they are aligned. The *signum* is burned and that is evident by the place of discovery, which is a mixture of earth and charcoal. It is interesting to note that only the torn off top of one branch was not in the fire, as reflected by the composition and preservation of bronze. Dimensions of *signum* are 22.3 × 10.9 cm.

Signa usually had at the top a votive plaque dedicated to a specific deity or label of the legion, usually made of a thin sheet of precious metal. Our *signum* is one of only a few similar findings from the territory of present-day Serbia, the area of the Roman province of Upper Moesia. The most analogous item, also with figural shape, derives from Belgrade, Roman *Singidunum*, and dates from the third century AD.⁵ The *signum* from Belgrade was discovered

during construction works and was out of context. On the other hand, one non-figural bronze *signum* was discovered during excavations in the sanctuary of Jupiter Dolichenus at Brza Palanka, ancient Egeta, on the Danubian limes. A gold votive plaque of this deity stood on the *signum* from Egeta.⁶

The *signum* from Timacum Maius shows the attributes of a deity in whose cult and rites it is used. Two roes (deer?) obviously point to the goddess Diana, who was highly respected in the Roman provinces by local residents and syncretised with indigenous divinities that protected forests and hunting.⁷ Given the fact that the area of Timacum Maius was in some way in the hinterland of major military communications and cults spread by the Roman army, and has always been rich in forests and wildlife, we believe that the indigenous population had no difficulties accepting the cult of Diana and identifying it with a local goddess of hunting.

The other object, the fragmented bronze circular icon-medallion, is preserved only in its right middle part, about 15% to 20% of its original shape. The dimensions of the fragment are 4.5 × 2.5 cm and its weight is 11.9 g. This medallion was cast from high-quality bronze and it seems more ‘massive’ than was necessary. The edge of the medallion is decorated with a deep groove that contains the theme, the so-called ‘Greek meander’. The preserved piece of the medallion shows part of an ancient temple, damaged in its lower segment. The entire medallion exudes a remarkable artistic approach with great attention paid to specific details.

On the medallion is most probably shown a Doric temple. Metopes and triglyphs above the architrave are characteristic only of the Doric style. Two clearly visible columns have Doric capitals, but the second pillar is not so plastic, and it is made to get an impression of depth and perspective. The right side shows most likely the angle of the temple with a half column and perhaps, the temple door in the right lower corner (?). The reconstructed diameter of the medallion, if it was circular as is indicated

⁵ Jovanović 2007, p. 33; as well as Krunić 1997, p. 78, no. 82.

⁶ Pop-Lazić 1977, p. 41.

⁷ Jovanović 2007, p. 33 and further.

by the groove with a Greek meander, was 9.2 cm. If our supposition regarding the preservation of the medallion is correct (15%–20%), the weight of the whole medallion would be between 59.5 and 80 g.

However, we can assume that it is a fragment of a bronze discoid pendant, maybe an amulet, or an icon-medallion with a mythological scene, which indicates a clear representation of the temple. If it is a discoid amulet or pendant we would expect two of its types. The first type is worn against the evil eye (a magic eye on it), and the other, with the notion of a deity, serves as protection from a very particular god. Nevertheless, it is more likely that we have here an icon in the form of a medallion, but it is difficult to say more with certainty about the actual mythological scene or to which divinity the whole composition was dedicated. There are different possible solutions. The missing part of the medallion could show only one deity directly related to the temple or maybe a more complex mythological scene.

The material from which the icon is created, bronze, is a rarity in the territory of Upper Moesia. In fact, most of the icons found so far are made of lead, while only a few known copies are in bronze. Based on the analogy of lead and bronze icons and medallions from our territory, our fragmented icon can be dated to the second or third century AD.⁸ When we consider that both bronze objects were found in the vicinity of the building with the specific hypocaust system from the first half of the second century AD, it could be concluded that there is a synchronicity between the building and the bronze artefacts. Given the rarity of metal findings of this type, their exceptional artistic creation and strong specificity of the Roman building, we could draw certain conclusions about the wealth and habits of the specific population from Timacum Maius. However, only future archaeological research will resolve the many questions as to the purpose of the building, as well as about the structure of the population of this ancient settlement.

⁸ Zotović 2001, p. 165 and further.

A Hackamore from Šljivovac (Eastern Serbia)

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Abstract: In the late 1990, at the entrance to the village Šljivovac, at the site ‘Njive’, a hackamore made of bronze was found with a metal-detector. This find, along with other metal objects discovered in the same way including a, bronze *simpulum*, bronze pot, bronze bowl (plate) and iron attache, was handed over to the National Museum of Požarevac. These objects were discovered near the road Požarevac-Žabari, some 9 km to the south from Požarevac. The whole hackamore is made of a single bronze band. It has a slightly oval front part with two gutter-like recesses on the broadest part of it. Above and under the recesses, on each side there is one ball-like ornament. At each end of the oval front part, there is a rectangular ending with a rectangular hole for fastening leather belts and bits. The side-parts are rectangular and they meet the front part at a right angle. Finally, at the ends of the side-parts, there is a semicircularly bent part, which went under the horse’s jawbone. Since all the finds were discovered with a metall-detector, there are no reliable data about the archaeological context. Still, there are data about the neighbouring sites, like the nearby village Kravlji Do in which a mosaic was found, indicating the existence of a *villa rustica* in this area. The find of this hackamore, probably of a military character, could indicate the existence of a *statio* or *mutatio* in this area, and it can be dated to the second or third century AD.

Keywords: Bronze, horse-equipment, hackamore, Roman road net, Roman period, Šljivovac, Serbia.

Özet – Šljivovac’tan (Doğu Sırbistan) Bir Objje: 20. yy.’ın sonlarında, Šljivovac köyünün girişinde, ‘Njive’ yerleşmesinde, metal dedektörlü bronzdan yapılmış bir yular-at başlığı ele geçmiştir. Bu buluntu, aynı şekilde keşfedilen bronz *simpulum* (kepçe), bronz tencere, bronz kase (tabak) ve demir ataş gibi diğer metal objjelerle birlikte, Požarevac Ulusal Müzesi’ne teslim edilmiştir. Bu objjelerin bulunduğu yer, Požarevac’ın 9 km güneyindeki Požarevac-Žabari yolunun yakınında bulunmaktadır. Yuların tamamı, tek bir bronz banttandır. En geniş kısmında yiv benzeri oyukları bulunan hafif oval bir ön kısma sahiptir. Oyukların üstünde ve altında, her iki tarafta da top şeklinde bir süsleme vardır. Oval ön kısmın her bir ucunda, deri kayışları ve uçları tutturmak için bir dikdörtgen deliğe sahip dikdörtgen bir uç bulunur. Yan parçalar dikdörtgen şeklindedir ve ön kısmı doğru açıda karşılamaktadır. Son olarak, yan parçaların uçlarında, atın çene kemiğinin altına giren yarım daire biçimli bir kısmı vardır. Tüm buluntular bir metal detektörü ile keşfedildiğinden dolayı, arkeolojik konteksi hakkında güvenilir veri sunmaz. Yine de, komşu bölgeler hakkında, yakınlardaki Kravlji Do köyünde olduğu gibi, bu bölgede içinde mozaik bulunan bir *villa rustica*’nın varlığını işaret eden verilere ulaşılmıştır. Muhtemelen askeri bir niteliğe sahip olan bu yuların bulunması, İ.S. 2. veya 3. yüzyıla tarihlenebilecek bu alanda bir *statio* veya *mutatio* varlığını gösterebilir.

Anahtar Kelimeler: Bronz, biniş ekipmanları, at başlığı, Roma yol ağı, Roma Dönemi, Šljivovac, Sırbistan.

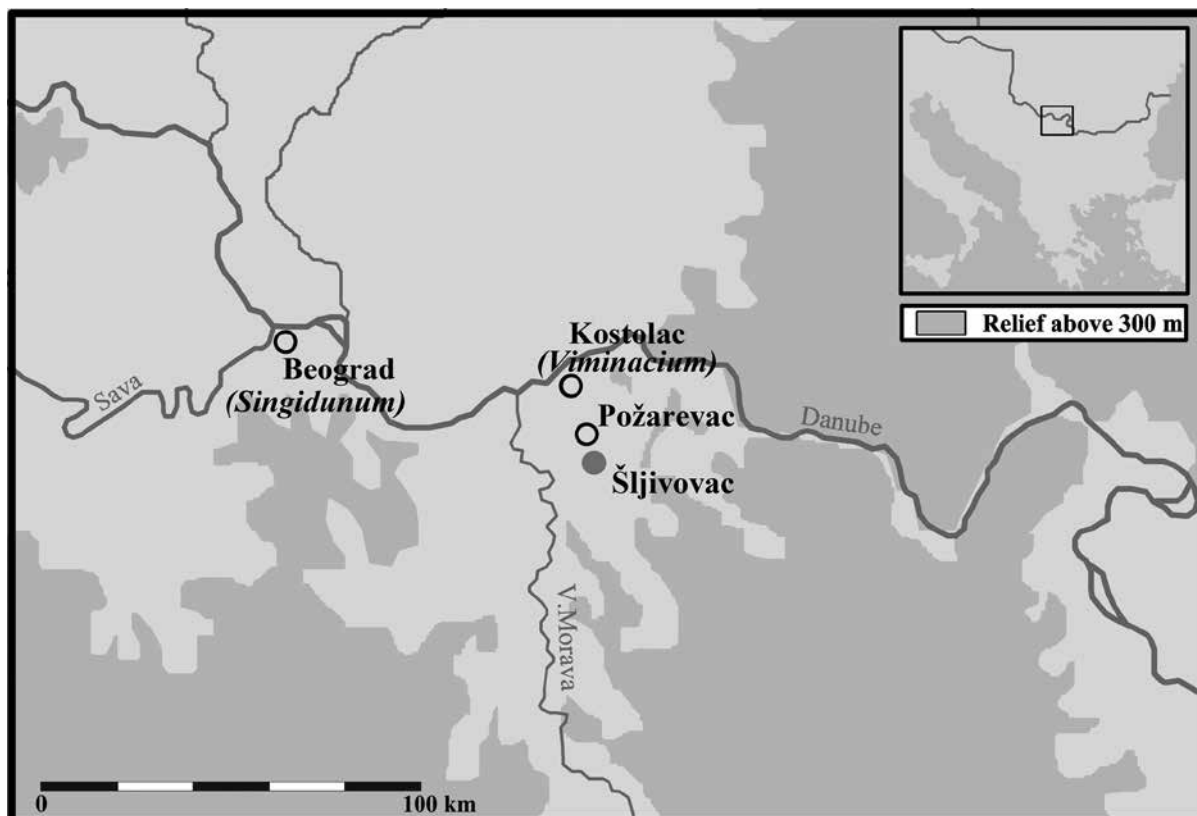


Figure 42.1. Location of the village Šljivovac in eastern Serbia (map by V. Ilić, 2010).

In the late 1990s, at the entrance to the village Šljivovac, at the site ‘Njive’, a hackamore made of bronze was found with a metal-detector. This find, along with other metal objects discovered in the same way including a bronze *simpulum*, bronze pot, bronze bowl (plate) and iron attache, was handed over to the National Museum of Požarevac. The character of this find could indicate that one is dealing with a hoard. Unfortunately, no other data concerning this find are known.



Figure 42.2. A hackamore from Šljivovac (by V. Ilić, 2010).

The village Šljivovac is situated 21.7 km (some 15 Roman miles) to the south of Kostolac, the former Roman city and military camp of *Viminacium*, and 7.5 km (some 5 Roman miles) to the west of Kalište, former Roman *Municipium* (figs. 42.1-10). The village is situated on the eastern slope of the Sopot hill rock, 6.5 km (some 4.5 Roman miles) to the east of the right bank of Velika Morava (Roman *Margum*) and 5 km (some 4 Roman miles) to the west of the river Mlava. The location in which these objects were discovered is situated near the road Požarevac-Žabari, some 9 km to the south of Požarevac.



Figure 42.3. A nose strap of the hackamore from Šljivovac (by V. Ilić, 2010).

The whole hackamore is made of a single bronze band (fig. 42.2). Its height measures 15.0 cm, its length 17.0 cm and its width 0.7 cm. It has a slightly oval nose-strap with two gutter-like recesses on the broadest part of it (figs. 42.3-4). Above and under the recesses, on each side, there is one ball-like ornament. At each end of the oval front part, there is a side-loop with a rectangular hole for fastening leather reins and bits. The side-parts are rectangular and they meet the front part at a right angle (figs. 42.5-6). Finally, at the

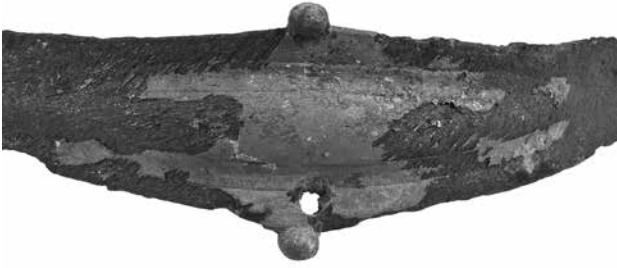
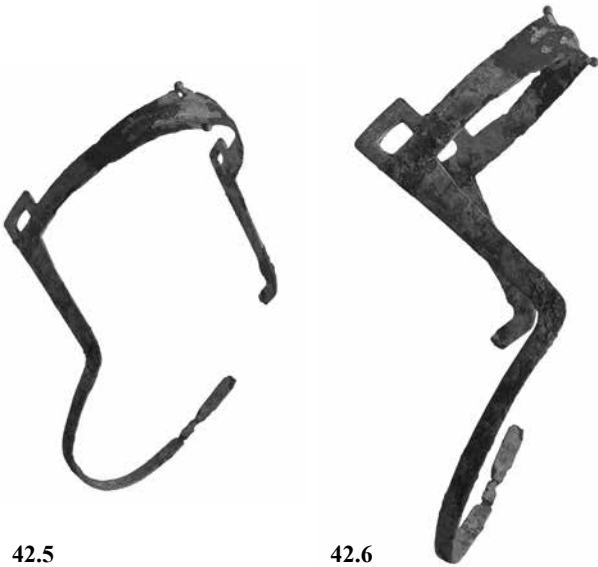


Figure 42.4. Nose strap of the hackamore from Šljivovac - detail (by V. Ilić, 2010).



Figures 42.5-6. Side parts of the hackamore from Šljivovac (V. Ilić, 2010).

ends of the side-parts, there is a semi-circularly bent part, which went under the horse's jawbone.

Since all the finds were discovered with a metal-detector, there are no reliable data about the archaeological context. Still, there are data about the neighbouring sites, like the nearby village Kravlji Do in which a mosaic was found, indicating the existence of a *villa rustica* in this area. The find of this hackamore, probably of a military character, could indicate the existence of a *statio* or *mutatio* in this area, and it can be dated to second or third century AD.

Sources enabling modern archaeologists to understand how Roman horse equipment looked and how it was worn is threefold: there are written sources, images (mostly carved in stone) and original finds.¹ Among the written sources, there are several ancient writers who mention the appearance of horse equipment of the time: Tacitus, Flavius Iosephus and Arrian.² Among the images depicting cavalry, one should under no circumstances forget the

infamous Trajan's column, which bears images of the Roman cavalry not only during battles but also within military camps and during marches. These images are much more precise and true than any of the average stone monuments from any of the Roman provinces, since the latter are often made under Hellenistic-Classical formal canons and are therefore idealized. Still, monuments with images important for this study are numerous for first/second century AD but appear less frequently for the period which came afterwards.³ The same can be said for archaeological finds.

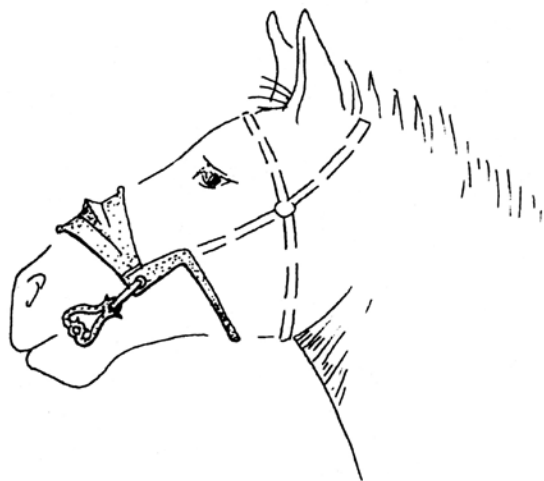
It is interesting to observe the frequency with which different parts of horse equipment are found: pendants, metal pieces of bridles, reins and bits and spear-points are found much more often than any other part of this equipment. It is also of interest to know the weight of the equipment of this kind: front-and back-reins with all of the *phalerae* and pendants weighed 4.5 kg.⁴ Effective horse equipment was of extreme importance to riders, as it had to make it possible for a rider to have complete control over the horse even in extreme situations. Functionally, horse equipment of the Roman times can be divided into three parts: the saddle, the bridle with reins and bits, and the rest of the equipment that was used for connecting the two parts and fixing them.⁵

During Roman times, two kinds of snaffle-bits were in use. The first kind, the so-called ring-shaped snaffle-bit, originates from Celtic times and the Late Iron Age. The second kind, the complex Italian snaffle-bit, originates from the Mediterranean area.⁶ This complicated mechanism is always schematically depicted on monuments, making it impossible for archaeologists to reconstruct it. Still, one can immediately understand that the snaffle-bit was more effective than the hackamore. It consists of a mouthpiece with a flat tang, a bar that goes under the chin, cheeks to which cheek pieces of bridle were fixed and rings used for attaching reins. The effectiveness of an Italian snaffle-bit was sometimes improved by using a hackamore.

A Roman hackamore has a nose-strip and side-loops on its endings. They are bent at their back endings and bound together with a bow-shaped back-piece. As a rule, the whole hackamore consisted of a single piece of metal, mostly bronze. The important questions of why hackamores were worn and what was their precise function are still debated. It is often believed that the hackamore was actually worn instead of a snaffle-bit, in cases when a horse's gums were oversensitive and would get hurt. On the other hand, hackamores were applied when gums were hardened and a horse would not react or correspond to a command given by pulling the snaffle-bit.⁷ Only with extremely wild or young horses could hackamores have been combined with

¹ Junkelmann 1989, p. 28.
² Junkelmann 1989, p. 29.

³ Junkelmann 1989, p. 28.
⁴ Junkelmann 1989, p. 35.
⁵ Kemkes and Scheuerbrandt 1997, p. 39.
⁶ Connolly 1988, p. 30.
⁷ Schwinden 1987, p. 36.



42.7



42.8

Figures 42.7-8. Ways of wearing a hackamore (drawn after Junkelmann 1992, p. 31, fig. 28, variants a and b).

snaffle-bits for better control. Junkelmann believes that a hackamore was in some cases worn without a snaffle-bit, *i.e.* that these two pieces were not always combined and applied together.⁸ Still, in a book he published in 1992,⁹ he is willing to accept the hypothesis of a hackamore always being worn along with a snaffle-bit.

The way of wearing hackamores is still a matter of academic discussion. After Groenman-van Waateringe and Taylor, a horse would wear a hackamore with its nose-strip placed upon the lower part of the nose and nostrils (fig. 42.7).¹⁰ The two cheek-pieces were bent upwards and the back part of the whole hackamore was placed higher, *i.e.* closer to the neck, than the nose-strip. By pulling the reins, a hackamore would press the nose and the back part of the jaw. This opinion is shared by Ann Hyland, who goes even further, claiming that there was a broad spectrum of hackamore shapes and sizes.¹¹ Since hackamores apply pressure on the back part of the jaw-bone and on the nose of the animal, one would have to choose an appropriate size in order to reach full effectiveness. Contrary to this, Littauer thinks that a hackamore was bound to the head-frame with loops, whereby the cheek-pieces would be pointing downwards. The back-piece was then placed lower than the nose-strip (fig. 42.8).¹² The same principle of wearing hackamores is supported by Junkelmann and even explained with a precise illustration.¹³ After close observation of the hackamore-example from Šljivovac, the authors of this paper are likely to support the explanations and descriptions given by Littauer and Junkelmann (fig. 42.9).

The very function of hackamores was to prevent horses from opening their mouths. If leather reins were to be

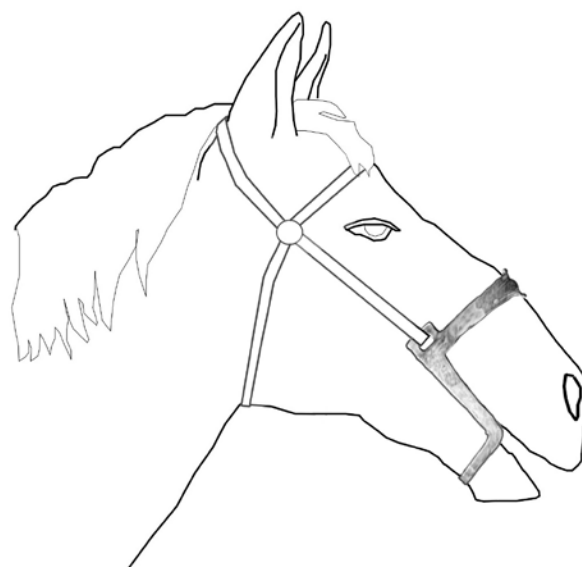


Figure 42.9. The way of wearing the Šljivovac hackamore (reconstruction by V. Ilić).

replaced with metal ones, the effect would become much higher. Even with the slightest pulling of the reins, a horse would react immediately. Only with wild-tempered horses was a hackamore combined with a snaffle-bit, and even then only when a very experienced rider was training.

Another way of using hackamores was also during training, but without a person riding. In such cases, a long lead would be attached to a hackamore. When the lead was pulled or if a trained horse would try to set itself free from the binding, a hackamore would increase pressure on its nose and jaw. Needless to say, a metal hackamore was of much more use than a leather rein. One should also not forget that a metal hackamore would offer greater protection during battles than the same piece of horse's equipment made of leather. Finally, a shining metal piece could also serve as

⁸ Junkelmann 1989, p. 34.

⁹ Junkelmann 1992, p. 30.

¹⁰ Groenman-Van Waateringe 1980, pp. 101–16; as well as Taylor 1975, pp. 106–33.

¹¹ Hyland 1990, p. 141.

¹² Littauer 1969, p. 291.

¹³ Junkelmann 1992, p. 21, fig. 9.

a decorative element. A presentation of a hackamore very similar to the Šljivovac one is shown on a fragmented horse-head carved in sandstone and discovered in Wallerfangen (Saarlouis county, Germany).¹⁴ Apart from a hackamore, this horse also wore a brow-band, a head-piece, a throat-latch, and a snaffle-bit. The nose-strap has two gutter-like recesses on its broadest part. It is also very similar to the hackamore discovered in Wiesbaden.¹⁵ On this one, there are also ball-like ornaments, each placed above and under the recesses. Both of the hackamores belong to Taylor/Lawson type 4.¹⁶ Taylor ascribes such hackamores to local, pre-Roman populations of the Rhine valley. In her publication, she gathered some 80 hackamores of this type and named them 'the Rhine type',¹⁷ since their finds were mostly spread in the provinces of Upper Germania and Raetia. Apart from the Wiesbaden example, there are other finds known from Augsburg and Augst.¹⁸ Their features include recesses on the nose-strap and rectangular, instead of circular, openings in the side-loops.

In graves of the Roman republican period, snaffle-bits and their accompanying parts, including hackamores, are always found in pairs, indicating that they were primarily used with draft animals and not with riding horses.¹⁹ Still, it is believed that they were used by the cavalry, mostly for the training of young and especially wild-tempered horses. Even the mentioned fragment of a horse-head from Wallerfangen was originally incorporated into a composition showing a group of cavalymen. The realistic details on this horse-head indicate that it can be dated to second century AD.²⁰

Finally, one concludes that hackamores were used with both draft and riding animals. They were spread throughout the Empire. The largest number of finds from Europe comes from the Rhine and the Danube valleys and Greece. Their dating is from the Early Imperial period to the third century AD. Depictions on sculptures sometimes date even from the fourth century AD, although it is in such cases always difficult to tell whether the hackamores presented were made of metal or leather.

The territory of Šljivovac and its vicinity was not archaeologically investigated. The only data about this area is due to several accidental finds. One of the most famous is a find from the late 1950s/early 1960s, discovered in the neighbouring village of Kravlji Do. After fluvial erosion, a Roman mosaic was revealed. Archaeological research revealed that it was placed in a rectangular room, connected with another smaller room with a corridor and a staircase. On the mosaic, made of white and black pieces, a running horse was depicted. In a frieze which was framing the mosaic, a Centaur and a human head were depicted.

The whole building most likely belonged to a veteran or a city governor who was in possession of an estate in the vicinity of *Viminacium*.²¹

Most information known about this region was given by Kanitz, a famous Austrian traveller, who visited Serbia during the second half of the 19th century. He marked some ancient remains in Oreovac, situated 13.5 km (some nine Roman miles) from Šljivovac, on a high terrace upon the right Morava bank. On the Mijovica hill, he discovered remains of a Roman castle measuring 70 × 15 m.²² No remains of a settlement on a larger scale were noted, although he traced pieces of Roman bricks in the Kolimirska valley.

Kanitz traced down a Roman road which leads along the Morava (*Margum*) valley, towards Požarevac and then to Vlaški Do, where the lower part of this road is still visible some ten meters away from the modern road. From that point onwards, the road leads along the area that was never flooded, towards the modern village of Aleksandrovac and then over Oreovica towards Simićevo-Rakinac. In Simićevo (former Rakinac) Kanitz found traces of a *castellum* built there to protect the road, at the right bank of a brook that flows through the village. According to him, the sides of the *castellum* measure 160 m. Around it, among bricks and *tegulae*, many pottery shards were found, as well as Roman silver coins, a Byzantine gold coin and an iron vessel. Kanitz followed the remains of this Roman road down the hill, all the way to modern Žabari. Along this way from Oreovica and Žabari, only 6 km (four Roman miles) long, Kanitz tracked down three Roman sites with *castella*.²³

Kanitz's opinion was that the Morava road led from *Margum* to *Horreum Margi*. This ancient road, reliably mapped by Kanitz, represented a natural, easily established connection between the Danube and the southern inland. Even modern engineers suggested a rail-line from Dubravica towards Niš along this track, over Požarevac, Svilajnac and Čuprija (*Horreum Margi*), as the most plausible one.²⁴

The position of this road, on a certain height of the western slope of the Sopot hill rock, offers complete surveillance over the entire Morava valley, rich in wood and water. Apart from the main road (*via publica*) *Viminacium-Horreum Margi* (fig. 42.10), mentioned in itineraries and in the *Tabula Peutingeriana*,²⁵ the remains of the road located by Kanitz indicate the existence of a 'Morava road', not mentioned in the itineraries. Since the Morava valley was of extreme importance ever since prehistory, representing the main connection to the Aegean world, and along the Danube with the Black Sea coast, the Kanitz's hypothesis is justified. This line, situated on the western slope of

¹⁴ Schwinden 1987, p. 38, fig. 4, acc. no. 19086.

¹⁵ Schwinden 1987, p. 37, fig. 1.

¹⁶ Lawson 1978, pp. 140–43, figs. 5–7, pl. 50.

¹⁷ Taylor 1975, pp. 124 and 129.

¹⁸ Kemkes and Scheuerbrandt 1997, p. 43.

¹⁹ Junkelmann 1992, p. 16.

²⁰ Schwinden 1987, p. 40.

²¹ Mirković 1968, p. 68.

²² Kanitz 1991, p. 223.

²³ Kanitz 1991, p. 224.

²⁴ Kanitz 1991, p. 224.

²⁵ Vasić and Milošević 2000, pp. 9–14, and 230.



Figure 42.10. Map of the Roman public road from Margum to Horreum Margi (after Vasić and Milošević 2000, 139, fig. 49).

the Sopot hill rock, was branching to vicinal roads to *via publica Viminacium-Horreum Margi* and to Homolje-Zviž inland, rich in ore.

In order to understand the area to the south of *Margum* and *Viminacium* which leads from Dubravica to Čuprija and had an important strategic meaning for communicating raw materials and trade, one has to consider a small amount of finds, most of which were found accidentally. Another fact which could be of interest is that until recently, this area was planted with vineyards, indicating great soil quality on the right Morava bank, which was convenient for

establishing rural villas. A find from Kravljji Do in Malo Crniće makes this hypothesis plausible.

Supplying road stations was not difficult since this area was traditionally known for horse breeding. It is also known that horses were bred here in antiquity. This hypothesis is confirmed by a papyrus from the beginning of Trajan's reign (AD 105), in which in a daily command of the *cohors I Hispanorum veterana quingenaria equitata* from Lower Moesia, a unit is mentioned, sent to *Margum* to buy horses.²⁶

Itinerary stations belonging to the public post were situated on distances of 5, sometimes 7 or 9 miles (7 to 13 km) from each other. Procopius claims that Roman emperors arranged between five and eight stations in certain places for a daily trip of a quick messenger. This distance would measure between 48 and 60 Roman miles (or 71 to 88 km) per day.

In written sources, itinerary stations are named differently, depending on the time they originate from: *mansio*, *mutatio*, *statio*, *praetorium*, *palatium*, *civitas* or *vicus*. The term *mutatio* is found only from the fourth century AD onwards. In the *Itinerarium Burdigalense*, from the year 333, *mansio*, *mutatio* and *civitas* are separated from each other. The *Itinerarium Antoninianum* does not describe *mutationes*, but only *mansiones*.²⁷ Itinerary stations were conducted by *praepositi* or *mancipes*. Apart from the *praepositi*, there were other services situated in itinerary stations. The *milites stationarii* (a kind of police, most likely two policemen per station) were in charge of controlling the ways of using cattle, as well as making sure cattle was not expropriated when it was needed for ploughing. The *stratores* looked after the station, but also did other kinds of work, like looking after horses. The *muliones*, the mule-keepers, were the most numerous workers. They were slaves of the state and each one of them took care of three mules. The *hippocomi*, the horse-keepers, took care of the stables, guiding passengers from one station to another and returning carriages. The *carpentarii* repaired and made carriages. All of them were under the supervision of a *praefectus*. A veterinarian, *mulomedicus*, most likely lived in a house within the *mansio*, together with his family. They were supplied with food and clothes by the state.

It cannot be said with great certainty how many head of cattle were in a single road station. It most likely depended on the importance of the road concerned. Procopius claims that there were forty horses in each station, which could be acceptable for a very frequent route. According to the law from 378 AD, five horses per day could have been equipped from each station. Only when imperial letters or those of utmost importance were carried, could this number have been increased. Also, only one mule-drawn four-wheeled carriage could be equipped daily.²⁸

²⁶ Vasić and Milošević 2000, pp. 9–14 and 230.

²⁷ Vasić and Milošević 2000, p. 133.

²⁸ Vasić and Milošević 2000, p. 135.

The hoard of metal objects from Šljivovac is dated to the period between the second and third century AD. It represents a significant contribution to the (so far) archaeologically little-known area of the right Morava bank, to the south of *Viminacium* and *Margum*.

Apart from other objects, the find of a bronze hackamore is of great importance, representing a unique discovery of this kind at the territory of Braničevo known so far. It is also one of the few finds of this kind from the whole territory of the former Roman province Upper Moesia. Research into this find can cast more light on certain parts of the horse's equipment. Needless to say, horses played a special role in the military, economic and religious lives of ancient people.

Typological and functional identification of the 'Šljivovac' hackamore was made according to written sources and parallels from Raetia and Germany. It was classified as belonging to the 'Rhine' type. It is usually treated as a decorative and 'binding' element of horse's equipment, but it played a much more important role in taming and training horses, which was necessary before such an animal could be included in different activities. Although without a precise archaeological context, the position of the hoard on the western slope of the Sopot hill, to the west of the road from *Viminacium* to *Horreum Margi*, and a possible route of the *Margum-Horreum Margi* road, whose existence was recognised by F. Kanitz during the second half of the 19th century. Its functional and chronological determination can be brought in close connection with services which were functionally connected to road station (*mansio, mutatio*), or with a specific unit on the part of the route concerned (*Margum-Horreum Margi*).

Horse-breeding, traditionally developed in the Morava valley, was already mentioned in sources dating from the time of Emperor Trajan.²⁹ When it is connected with the facts named above, it casts more light to the character of the territory to the south from *Viminacium* and *Margum*, especially on its importance within the system of defense and communication.

The previous owner of the hoard of metal objects was most likely a person who was connected to the road station along the route mentioned, either as an officer of the station or an inhabitant of a nearby estate or *villa rustica*.

The discovery of this hoard of metal object reaffirms the qualitative and quantitative potentials of the territory to the south of *Viminacium* and *Margum*, i.e. the right Morava bank, as extremely convenient for establishing *vici* and *villae* of city governors. The discovery of a building with a mosaic in the nearby village of Kralji Do also indicates this.³⁰

Since after Kanitz's discoveries, this area remained on the edge of archaeological interest, such a splendid find

shows a need for systematic research and defining a suspected route and an infrastructure along this route. A hypothesis of highly developed agriculture and stock-breeding in this area from the first to the fourth century AD is in a way supported by this find. Agricultural estates offered strategic support to communications and travelling stations in supplying them with food and livestock. Data from the already-mentioned papyrus confirm this fact (dated to Trajan's reign, around AD 105). There is a unit mentioned in it, which was sent to Margum in order to get horses as supplies.³¹

The find of the Šljivovac hackamore represents a modest contribution to clarifying the insufficiently explored territory to the south of two important Moesian urban and military points, *Viminacium* and *Margum*, situated in an extremely fertile area, which, apart from its strategic function, also played an important role in the economy of both cities.

²⁹ Vasić and Milošević 2000, p. 230.

³⁰ Mirković 1968, p. 68.

³¹ Vasić and Milošević 2000, p. 230.

A Bronze Statuette from Gonio-Apsarus in Georgia

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Abstract: Pontic Apsarus, *i.e.* castle of Gonio-Apsarus, – one of the most important sites of the eastern Black Sea area – is well-known in the Classical and Roman-Byzantine literary sources. At this many-layered site material of the Roman and Byzantine periods are well-preserved. The last settlement of the site in the 16th century is connected with the Turkish occupation. Of archaeological artefacts a collection of bronze sculpture is noteworthy. In 2007 a bronze arm was added to this collection, found at the baths area in SW, section V. It represents a left arm (length 62 mm, height 35 mm), bent at the elbow, with an out-turned thumb. The arm is massive, covered with green patina. This fragment could belong to either a statuette, representing a small-scale copy of some monumental sculpture worshipped in a private context, or to some kind of luxurious items, for instance bronze mirrors, with anthropomorphous handles. Analogous specimens of small plastic objects were well-spread in the Roman world and are found at almost all more or less important sites. The above-mentioned find attests, together with the Gonio hoard of golden items, to the existence of a society using luxurious items at Apsarus.

Keywords: Bronze statuette, the Gonio hoard, Roman-Byzantine periods, Gonio-Apsarus, Pontic Apsarus, Georgia.

Özet – Gürcistan’daki Gonio Kalesi’nden Bronz Bir Figürin: Doğu Karadeniz Bölgesi’nin en önemli ören yerlerinden biri Gonio-Apsarus Kalesi, Klasik, Roma ve Bizans Dönemleri edebi kaynaklarında iyi bilinmektedir. Roma ve Bizans Dönemleri’ne ait bu çok katmanlı yerleşime ait buluntular oldukça iyi korunmuştur. Alandaki son yerleşim ise 16. yy.’da Osmanlı yönetimi ile bağlantılıdır. Arkeolojik eserler arasında bir bronz heykel koleksiyonu dikkat çekicidir. 2007 yılında güneybatı, hamam açması, V numaralı alanda bulunan bronz bir kol bu koleksiyona eklenmiştir. Sol kolu, açık başparmağı ile dirsekten bükülmüş vaziyettedir (uzunluk 62 mm, yükseklik 35 mm). Bu masif kol, yeşil patina ile kaplıdır. Bu fragman ya ibadet edilen bazı anıtsal boyutlu kült heykellerin küçük ölçekli bir kopyasını ya da bir tür lüks eşyanın (örneğin antropomorfik kulplu bir bronz aynanın) parçasını temsil eden bir heykelciğe ait olabilir. Benzer örnekler, Roma dünyasında oldukça yaygındır ve belli başlı yerleşimlerin ya da küçük örenyerlerinin hemen hemen hepsinde ele geçmiştir. Yukarıda belirtilen buluntular, ünlü Gonio altın defnesi de göz önüne alındığında bu yerleşimde lüks eşyaların kullanıldığı bir toplumun varlığına işaret etmektedir.

Anahtar Kelimeler: Bronz figürin, Gonio defnesi, Roma ve Bizans Dönemleri, Gonio Kalesi, Gonio-Apsarus, Gürcistan.

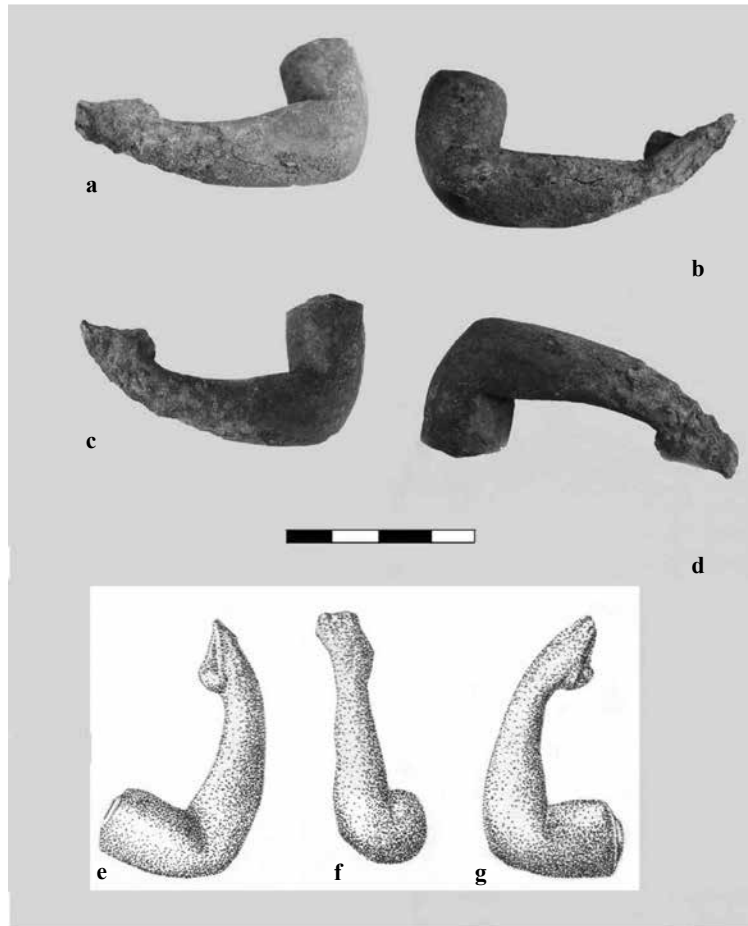
The fortress of Gonio-Apsarus, located on the eastern Black Sea coast, is known on the one hand from ancient tradition and from Roman-Byzantine written sources, and on the other hand from the archaeological finds from the eighth-seventh centuries BC. and the Middle Ages. The last phase of the occupation at this site is the 16th century, which is related to the Turkish rule in the area.¹

This site is well-known with numerous archaeological artefacts and bronze finds, such as a human hand with fingers² and a group of Serapis figurines.³ As a result of the archaeological excavations in 2007 in ‘Abanotubani’, in the bathing district, sector SW, V, some bronze arm fragments have been found. The discovery of these artefacts once again highlighted the importance of this site and its connection to the outside world.

¹ Kakhidze and Mamuladze 2004.

² Khalvashi 2002, pp. 134–68.

³ Mamuladze 2009.



Figures 43.1a-g. A small arm fragment made of bronze (by N. Sulava, 2011).

This recent find represents a left arm bent at the elbow, the hand and the wrist with four fingers pressed together and a thumb bent upwards. The arm is cut off above the elbow and at the cut the bridge of a round protrusion is noticeable.⁴ It is massive and covered with a green patina. Its length is 62 mm and height 35 mm (figs. 43.1a-g).

What information can be gleaned from this fragment? The analysis of its findspot and archaeological context play a major role in the interpretation of this object.

The bronze arm was discovered on the hill of the fortress of Gonio-Apsarus ('Abanotubani'), on which two buildings from the Late Middle Ages – a mosque and a bath – have been preserved. The remains of these buildings from different periods, the dissolved layers and the mixed material testify that most of the finds are unstratified. At the moment the early medieval and Roman layers of these two buildings of the fortress part have been dissolved. The early medieval layers are represented by building remains and characteristic archaeological material of that period. This part of the fortress is also of interest due to the evidence of those ancient layers that do not occur in other parts of the fortress that have been explored to date.

⁴ A similar protrusion can be observed at the intersection of the left arm of the Roman-Egyptian statue of Isis from the Greco-Roman period: see Comstock und Vermeule 1971, p. 132, n. 150.

This includes the remains of the so-called dune home with the characteristic pottery with banded decoration from the eighth/seventh century BC.⁵

The bronze arm was discovered in the central part of square 45, in sector SW, V of the fortress of Gonio-Apsarus, 80–90 cm below the current surface of the earth, on the south-eastern side of the round pile of stones. A hollow bronze tube and a glazed ceramic fragment have been found in the same spot, which suggest rather a mixed layer. If you look at the status of the neighbouring squares, *i.e.* 35 and 36–46, you can clearly see that most of the remains of the buildings⁶ there belong to the Early Middle Ages, which is due to the large number of early medieval (Byzantine) *amphora* fragments of various types (tubular *amphorae*, *amphorae* with a funnel-shaped mouth, Sinopean *amphora* and *amphora* with brown clay), kitchen and building ceramics. The material from the Roman period is represented by smaller building remains and quite diverse material. First and foremost, the imported red ceramics (bowls, mugs, lamps), Sinopean *luteria* and glass products (bowls, mugs, drinking vessels) should also be mentioned. Above the early medieval buildings in the referred squares above lies a late medieval water pipe from the time of the

⁵ Kakhidze and Mamuladze 2004, p. 35.

⁶ For some more spacious buildings, see the plan at Sulava 2009.

Turkish-Ottoman rule at the site, which is derived from the south and is particularly well preserved in the sector to be examined.⁷ It should be emphasized that the archaeological material from the time of the Turkish rule – various fragments of the glazed ceramics and kitchen ware, pipes, candle holders, fragments of faience and porcelain⁸ – are found throughout the excavation site, on different levels and in diverse layers. There is a clear evidence that this area was subject to extensive building activity during the period of Turkish rule.

Due to the described find situation, it is difficult to assign the bronze arm fragment clearly to a certain archaeological building complex, *i.e.* a building or a clearly defined layer.

The bronze arm fragment could perhaps have belonged to a statuette which, as a scaled-down copy, followed a well-known type of large sculpture. It may have been set up in a private context either for decorative purposes or for its religious function. But the fragment can also have belonged to an object, such as a bronze mirror whose handle consisted of a figure.

As very well-known, the small bronze sculpture is deeply rooted in ancient Greek art.⁹ This tradition was also continued in the Hellenistic period¹⁰ and it was even characteristic¹¹ of this special period in a certain sense. The small bronze statuettes were also widespread in later Greco-Roman times, both as an independent object and as an additional decorative element for objects with various functions, such as mirrors¹² or handles of bronze vessels, such as *paterae*.¹³

Similar small bronze sculptures to the one from Gonio-Apsarus were widespread throughout the Roman world and have been discovered at almost all more or less significant sites that have been researched to date.¹⁴

Such ancient small bronze statuettes are also known from the rest of Georgia:

In 1951 the so-called ‘singer-minstrel’ was discovered in the tomb of Mtskheta station.¹⁵ A little earlier a small gold figure of a deity was found near Dzegvi.¹⁶

Of particular interest are the following items found in the Vani area:

A figurine adorning a dish, a 18 cm-high bronze statuette – winged Nike, which, according to Otar Lordkipanidze’s determination, has similarities with the Nike type that was found in the second half of the second century AD in the city of Myrina in Asia Minor.¹⁷

The silver figurines of the naked youths (Apollo), 8.5 cm and 7 cm in size, which come from the Greek workshops of Asia Minor, inspired by the Classical Greek sculptor Polykleitos. They were found in a treasury to the south of the twelve-step altar. These objects exist in a large number and variety. They were dated into the second/first century BC.¹⁸

The bronze figure of a satyr adorned with a gold wreath and gold bracelets, dated in the third century BC.¹⁹

The treasure of iron and bronze objects from the Late Hellenistic period, discovered in Vani in 2007, deserves a special attention. The date of the burial of this treasure is assumed to be the mid-first century BC. The incense burners and lamps discovered there are adorned with the bronze figures of the Siren and Eros.²⁰

In Gonio itself, on the mountain ridge that delimits the fortress to the south, a hoard with golden items was found during the construction of the motorway in 1974. We are particularly interested in the golden statuette of a young man with the height of 7.6 cm, identified as Dioscur = Kabir = Koriban and dated into the first century AD. The discovery of this arm of a bronze statuette confirms the existence of one developed consumer society located in Gonio-Apsarus. And – as the authors of the Gonio treasure, *i.e.* O.D. Lordkipanidze, Mikelidze and Khakhutaishvili, claimed – “the items from the Gonio treasury belonged to another unknown group of the ruling society in ancient Georgia in the first century AD, central castle of which was probably Apsarus. All these archaeological items complement the vague messages about the city of Apsarus that are scattered in the old chronicles”.

Translated from German into English
by E. Lafi

⁷ See plan at Sulava 2009.

⁸ Mamuladze *et al.* 2010.

⁹ Mitten and Doeringer 1967, pp. 28–119. For example, for the Roman figurines in Asia Minor *cf.* Lafi 2015–2016; Lafi and Feugère 2006; Kara *et al.* 2013, p. 177; as well as Lafi and Gürlér 2015, p. 71, fig. 31b.

¹⁰ Mitten and Doeringer 1967, pp. 125–45.

¹¹ Comstock and Vermeule 1971, nos. 67, 71, 74 and 76.

¹² It is noteworthy that in this square (59) the fragments of a bronze mirror disk were found, see Comstock and Vermeule 1971, no. 352 (500 BC.; Aphrodite and Eros); nos. 353–354 (480 BC.).

¹³ Comstock and Vermeule 1971, no. 462 (Greco-Roman); nos. 512, 520 and 521 (400 BC.).

¹⁴ Weber 2000; Fischer 2002; Gudea and Lobüscher 2006.

¹⁵ Lomtadze 1955, 312.

¹⁶ Apakidze 1955, p. 4; Apakidze 1989, p. 425.

¹⁷ Lordkipanidze 1972, pp. 30–33, pl. 143; see also *ibid.*, bibliography; as well as Kačarava and Kvirvelia 2008a, figs. 10a-b.

¹⁸ Pirtskhalava and Kipiani 1986, p. 77, pl. 57, no. 2.

¹⁹ Kvirvelia 2005, pp. 187–88, fig. 3; Kačarava and Kvirvelia 2008b, pp. 96–112, fig. 1.

²⁰ Akhvédiani 2008, p. 129.

Some Thoughts On the Use of Saws in the Ancient Bronze Foundry

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Abstract: The production of bronzes involved many tools and multiple steps, and post-cast work generally involved repairing, joining, and final surface finishing. Saws are depicted hanging from workshop walls in two Classical vase paintings and the saws' purpose or function remains a source of speculation. The Nolan vase (Museum of Fine Arts in Boston) illustrates a bow-type of saw which may have been used in armor production while the Foundry Cup (Berlin) illustrates a large two-person saw within a context of post-cast sculpture assembly and finishing. In contrast with contemporary fine-toothed metal saws, possible ancient metal saws would have likely used an abrasive method similar to lapidary saws, and both illustrations appear to depict the tools with relatively flat cutting edges. Possible reasons for sawing following bronze casting may have included the removal of gates and unwanted/miscast portions. Sawing may also have been a more integral part of the bronze production process. Abrasive sawing produces a clean, straight cut with little removal of metal may have been used to open sections of bronze for core removal. Pre-cast cutting of wax models, investment and casting of separate bronze components may also have introduced a series of small flaws and misalignments which could affect later joining. These misalignments may have become more problematic as the walls of bronze castings became thinner. Post-cast sawing and separation would therefore retain excellent alignment between parts. The Foundry Cup also illustrates parts of bronze figures with relatively straight edges, and straight-edge joins have been observed on some extant bronzes. Test abrasive cutting of a copper pipe showed the feasibility of the method.

Keywords: Bronze, workshop, foundry, saw, casting, joining, tools, vase painting, abrasive.

Özet – Antik Bronz Dökümhanesinde Testerelerin Kullanımına İlişkin Bazı Düşünceler: Bronz üretimi, birçok alet ve birçok aşama içermekte olup, döküm sonrası iş genellikle onarım, birleştirme ve son yüzey işlemini kapsamaktadır. İki Antik Çağ vazosu resminde atölye duvarlarından sarkan testereler gösterilmiştir ve testerelerin amacı veya işlevi konusu spekülasyon kaynağı olmaya devam etmektedir. Dökümhane Kabında (Berlin) döküm sonrası heykel montajı ve bitirme işleminde iki kişilik büyük bir testereyi gösterirken Nolan vazosunda (Boston'daki Güzel Sanatlar Müzesi), zırh yapımında kullanılmış olan yay tipi testereyi göstermektedir. Çağdaş ince dişli metal testerelerin aksine, olası antik metal testereler büyük olasılıkla taş testerelere benzer bir aşındırıcı yöntem kullanmış olacaktır ve her iki çizim de aletleri nispeten düz kesme kenarlarına sahip olarak gösteriyor gibi görünmektedir. İstenmeyen/yanlış yayın bölümleri ve kapıların çıkarılması için bronz dökümden sonra kesme işlemi gerekli olabilir. Testere aynı zamanda bronz üretim işleminin daha ayrılmaz bir parçası olmuş olabilir. Aşındırıcı testere, metalin çok az bir şekilde çıkarılmasıyla temiz ve düz bir kesime yardımcı olur ve çekirdek parçaların çıkarılması için bronz bölümlerin açılması amacıyla kullanılmış olabilir. Balmumu modellerinin döküm öncesi kesimi, ayrı bronz bileşenlerin yatırılması ve dökülmesi, daha sonra birleşmeyi etkileyebilecek bir dizi küçük kusur ve yanlış hizalamayı da beraberinde getirebilir. Bu yanlış hizalamalar, bronz döküm duvarları inceltildikçe daha problemlili hale gelebilir. Döküm sonrası testere ve ayırma bu nedenle parçalar arasında mükemmel bir uyum sağlar. Dökümhane Kupası ayrıca, göreceli düz kenarlara sahip bronz figür parçalarını da gösterir ve bazı mevcut bronzlarda düz kenar birleşimleri gözlenmiştir. Bir bakır borunun aşındırıcı testiyle kesilmesi, yöntemin uygulanabilirliğini göstermiştir. Dökümhane Kupası ayrıca, göreceli düz kenarlara sahip bronz figür parçalarını da gösterir ve bazı mevcut bronzlarda düz kenar birleşimleri gözlenmiştir. Bakır borunun aşındırıcı kesimini test etmek, yöntemin uygulanabilirliğini göstermiştir.

Anahtar Kelimeler: Bronz, atölye, dökümhane, keski, kalıba döküm, birleştirme, aletler, vazoya boyama, kazıma.

Introduction

Metalworking requires a variety of tools and saws may be among them. In antiquity, soft materials such as wood were cut with toothed saws, whereas harder materials were often cut with saws using abrasives.¹ Abrasive processes were used on a large scale for cutting architectural stone blocks, but also on a smaller scale to cut such materials as glass² and for drilling gems.³ Several vase scenes feature saws within metalworking contexts, yet metal cutting such as might have been employed within an ancient bronze foundry is not well understood.

Depictions of saws on vases

Saws depicted in vase scenes are typically thought to have been used to cut firewood.⁴ One example, the two-person saw depicted on the Foundry cup⁵ has been variously considered as a saw for wood or metal.⁶

It is quite large – around 1.2 m/4 feet in length and, if for woodcutting, designed to cut fairly heavy timber. Other vase paintings depict saws in armorer’s shops (for example Boston 13.188⁷ and Berlin F2415⁸) and these saws are generally of the smaller bow-type. One notched saw (Museo Archeologico Nazionale PD 117⁹) has a handle affixed to one end. All of these saws are depicted with flat blades or flat blades with evenly spaced indentations.

Saw scale and context

The scene on the Berlin Foundry Cup depicts the final production stages of a large-scale bronze. In contrast, saws depicted in armorer’s scenes are much smaller, yet appear in scale to the work performed. The large saw on the Foundry cup is also depicted not with teeth but with notches, raising the possibility that this large blade may have been used to make cuts in large sections of bronze.

Blade configurations

Saws depicted in metalworking scenes typically have flattened blades or flat blades with possible notches

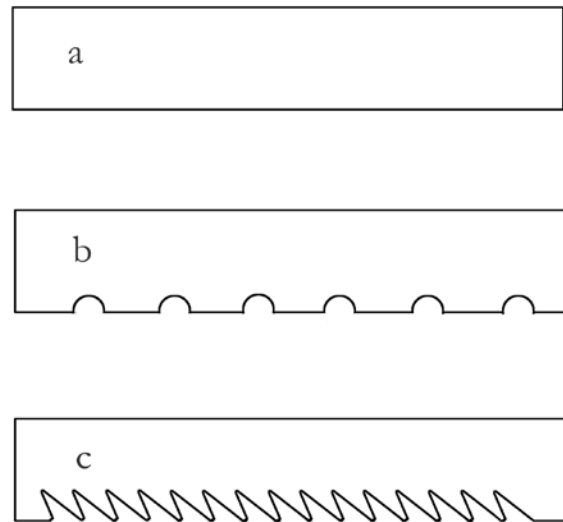


Figure 44.1. Saws with flattened blades or straight blades with possible notches (by J.P. Maish, 2010).

(fig. 44.1).¹⁰ Although the renditions of various blade types are often regarded as a vase painter’s shorthand for a toothed wood saw, they may also reflect different saw types. A wood saw is clearly depicted in a vase painting with triangular teeth cutting through wood.¹¹

The cutting action of a metalworking saw would necessarily be different from wood saw. Whereas saws with kerfed teeth are designed to cut, saws with flattened blades would necessarily operate by abrasion, using an abrasive in some type of carrier such as an oil. Abrasives such as emery were available in antiquity with hardnesses capable of cutting metal. Some of the relevant materials and hardnesses are compared in table 44.1.¹²

Abrasive cutting test

A simple small-scale saw was made by cutting several semicircular indentations (similar to the notches visible on the Foundry cup saw) into a section of 2 mm wide steel

Table 44.1. Material vs. abrasive hardness (by J.P. Maish, 2010)

Material	Hardness (mhos) ¹²
Marble	2.5–5
Copper	2.5–3
Bronze	3–4
Iron	4
Emery	8–9

¹ See Warnecke 1997, pp. 33–38.

² See Lierke 2003, pp. 345–56.

³ Examples of gem and stone cutting are described in Charleston 1964, pp. 83–100; Gorelick and Gwinnett 1983, pp. 40–47; Sax, McNabb and Meeks 1998, pp. 1–21; as well as Strahan and Fenn 2007, pp. 26–36.

⁴ Wood saws come in several forms including the two-person band saw (German ‘Bandsäge’), a frame saw (‘Rahmensäge’), bowsaw (‘Bugelsäge’) and fretsaw (‘Stichsäge’) in Gaitzsch 1980. See also Jones and Simons 1961.

⁵ Berlin F2294: red-figure cup, Beazley, *ARV* (second ed.), 400.1; Beazley Archive Db no 204340.

⁶ Cavalieri 2000, pp. 76–85. The author initially considers the possibility of a metal saw but concludes that it was probably a wood saw.

⁷ Boston 13.188, red-figure neck-*amphora*, Beazley *ARV* (second ed) 306.2; BAD 203143.

⁸ Berlin F2415, red-figure chous, Beazley, *Attic Red-Figure Vase Painters* (Oxford 1963, 2nd ed), 776.1; Beazley Archive Db no. 209569.

⁹ Museo Archeologico Nazionale PD 117, red-figure cup fragment (Florence, Museo Archeologico Etrusco). *ARV* (second edition), 24.13; BAD 200138.

¹⁰ See Gaitzsch 1980. Chapter 15 includes a discussion of Roman saws and Latin terminology related to saw names, such as ‘serra’ for saw, ‘serrula’ for a small saw and ‘lamina’ for saw blade.

¹¹ A Campanian bell krater, Louvre K 259, clearly shows a wood cutting saw. Chatzidimitriou 2005, p. 39.

¹² Increasing numbers correlate to increased hardness.

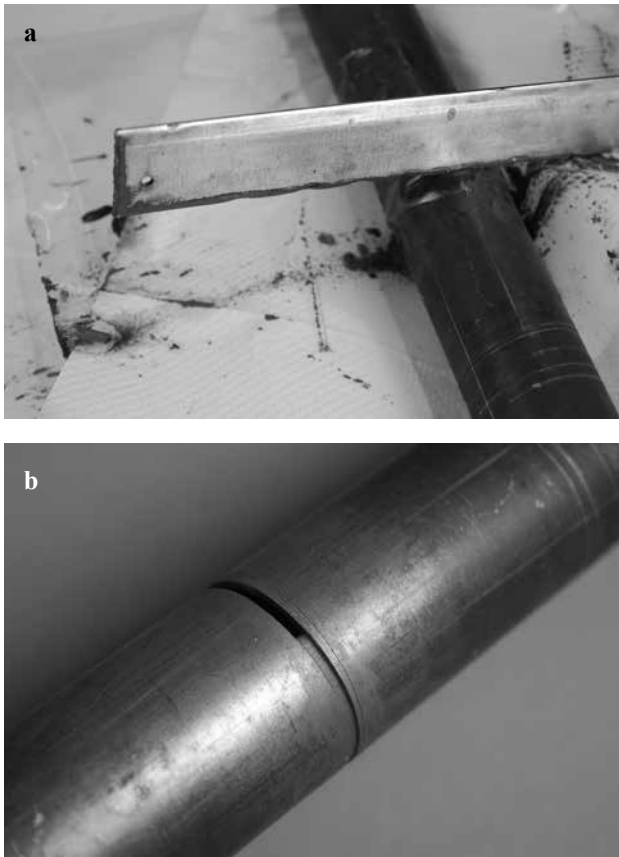


Figure 44.2a-b. A sawn thick pipe (by J.P. Maish, 2010).

bar. Loose carborundum abrasive¹³ was mixed with olive oil and applied to a 5.0 cm diameter copper test pipe. Used in a sawing motion, the 2 mm thick pipe wall was partially sawn through in 25 minutes (fig. 44.2). Sawing was aided by slowly rotating the pipe and using the previously cut shallow groove as a guide. The groove, as well as the indentations in the bar, also helped retain and distribute the abrasive mix. Replenishment of the abrasive slurry accelerated the cutting action.

Workshop cutting of metal

Certain saws depicted in metalworking scenes may have been used for charcoal or woodcutting but, as discussed, their use may also relate more specifically to metalworking. There are several reasons a founder may have needed to cut metal.

Removal of extraneous sections/sprues: Post-cast gate/sprue removal with saws may have been preferable to chiseling so as to avoid possible surface damage. However, this would have required only a small saw even on large sculptures, and the size of the Foundry Cup saw would seemingly have been excessive for this purpose. This suggests the large saw may have had other uses as described below.

¹³ Aluminum silicate.

Removal of miscast sections: A variety of failures or flaws may be generated during bronze casting. These include cold shuts where molten metal, flowing together, cools too rapidly (and does not join); extensive porosity due to air or gas entrainment; or a miscast where bronze simply does not flow into a volume as anticipated. In any of these cases, a large flaw may have been most easily, and cleanly, dealt with by sawing a section off.

Core and armature removal: Core removal would have reduced the weight of a casting and the interior of a bronze may have been accessed for this purpose by sawing. A particularly hard core may also have been more easily removed with greater access to the interior. The accurate abrasive cutting would also have simplified subsequent metallurgical joining of sections. Although cutting a successfully cast bronze may not seem rational today, some foundries may have found that it required less overall time than the investment and piece casting of individual parts. The development of thinner bronze walls (ca. 5 mm) may have led to misalignments between separately cast components, and a 2–3 mm misalignment in a 5–6 mm wall join could have been significant.¹⁴

Misalignments between parts could have been accidentally introduced at several stages of casting including the handling and cutting of wax models, variable shrinkage of wax models (in 2–3% range) and shrinkage of the bronze itself (2–3%).¹⁵ Casting and cutting sections may have reduced misalignments between thin-wall sections and subsequent metal-to-metal joins would have been well-aligned.

Conclusions

Although evidence at this point is circumstantial, bronze researchers should, in addition to casting features, evaluate bronzes for possible saw cutting. Roughly cylindrical volumes would have been the best candidates for cutting (for core removal) including necks, thighs and possibly even the centre of the torso and, if present, these joins should appear oval to linear in radiographs. Certain features such as linear porosity patterns may also cross joins and is visible in radiographs. Internal join edges should also be investigated endoscopically for signs of cutting.

¹⁴ One scene on the Berlin Foundry cup shows hammering which may have been done to align parts.

¹⁵ The author would like to thank Los Angeles bronze founder Sandy Decker for his insights on the topic (conversation Jan 18, 2010). Because of shrinkage during the modeling and investment process, he often asks artists to plan 5–10% oversize. In some cases, he adds gates as temporary supports during investment which are removed prior to casting.

New Approaches for The Study of the Characterisation of Corrosion Patina on Bronze Samples Exposed to Sulfur Dioxide Corrosion Atmosphere

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Abstract: The aim of this work is to study the diseases of copper-tin alloys exposed to a controlled environment, focusing attention on bronze reaction during the early stages of exposure to moist air with particular reference to sulfur dioxide. Physical and chemical data were used in order to simulate the bronze corrosion process with a mathematical model. In the present work, an approach is proposed based on the characterisation of the corrosion products developed after simulated acid rain conditions. The evolution of the SO₂ corrosion process on bronze surfaces was monitored, considering all the major aspects. For the physical and chemical data detection the following instrumentations were employed: a micro-analytical balance for the monitoring of weight variation; scanning electron microscopy with X-ray microanalysis (SEM-EDS) for morphological and compositional analysis of the surfaces and for evaluating the chemical composition as a function of patina thickness; and X-ray diffraction (XRD) to characterise the crystal corrosion structures. A spectrophotometer (CIELAB) was utilised to test the correlation between the corrosion growth and the colourimetric parameter variations. Furthermore, for the electrochemical aspects, Cyclic Voltammetry (CL) was employed.

Keywords: Corrosion patina, bronze samples, colourimetric, XRD, SEM-EDS measurements, mathematical model.

Özet – Kükürt Dioksit Korozyon Atmosferine Maruz Kalan Bronz Numuneler Üzerinde Korozyon Patinasının Karakterizasyonu Çalışması İçin Yeni Yaklaşımlar: Bu çalışmanın amacı, kontrollü bir ortama maruz kalan bakır-kalay alaşımlarının hastalıklarını araştırmak, özellikle de sülfür dioksit referansı ile nemli havaya maruz kalmanın erken aşamalarında bronzun durumuna dikkat çekmeye odaklanmaktır. Fiziksel ve kimyasal veriler bronz korozyon işlem simülasyonlarının matematiksel bir modelle gerçekleştirilmesi için kullanılmıştır. Mevcut çalışmada, simüle edilmiş bir asit yağmuru durumundan sonra geliştirilen korozyon ürünlerinin karakterizasyonuna dayanan bir yaklaşım önerilmiştir. Tüm önemli hususlar göz önünde bulundurulduğunda, bronz yüzeylerdeki SO₂ korozyon sürecinin gelişimi izlenmiştir. Fiziksel ve kimyasal veri tespiti için aşağıdaki aletler kullanılmıştır: ağırlık değişiminin izlenmesi için bir mikro analitik denge; yüzeylerin morfolojik ve kompozisyonel analizi ve kimyasal bileşimin patina kalınlığının bir fonksiyonu olarak değerlendirilmesi için X-ışını mikroanalizi (SEM-EDS) ile taramalı elektron mikroskopisi; kristal korozyon yapılarını karakterize etmek için X-ışını kırınımı (XRD). Korozyon büyümesi ve kolorimetrik parametre varyasyonları arasındaki korelasyonu test etmek için bir spektrofotometre (CIELAB) kullanılmıştır. Ayrıca elektrokimyasal yönlere için Döngüsel Voltametri (CL) kullanılmıştır.

Anahtar Kelimeler: Korozyon patina, bronz örnekler, renkölçümsel, XRD, SEM-EDS ölçümleri, matematiksel model.

Introduction

Archeometry today is increasingly based on survey systems that allow the detection of infinitesimal details in a work of art, furnishing new interpretative aspects.¹ For this, new methods are needed for monitoring and detecting surface alterations even before they are visible, making it possible to intervene without heavy restoration procedures. One possible approach is to develop a mathematical model which simulates the corrosion product growth on bronze specimens, starting from experimental determinations.

The main aim is to create a new approach for elaborating data, carried out by chemical-physical technologies, through a mathematical model, in order to forecast corrosion behaviour without the necessity of extensive use of laboratory tests.² The chemical and physical data collected during the experiments were used as input data for the elaboration and the calibration of a Mathematical model, which simulates the corrosion product growth on copper surfaces as a function of specific environmental conditions. The model, developed in collaboration with the Istituto per le Applicazioni del Calcolo 'Mauro Picone' Consiglio Nazionale delle Ricerche, is focused only on copper corrosion phenomena and describes the formation of brochantite ($\text{Cu}_4\text{SO}_4(\text{OH})_6$), taking into account a thin layer of cuprous oxide (Cu_2O).³

The choice of a methodology to obtain the most suitable data as input for the mathematical model can be briefly described in the following steps:

1. Choice of the laboratory procedure to simulate corrosion processes corresponding to real values.
2. Setting of the optimal laboratory corrosion conditions for bronze ingots prepared as reference samples.
3. Evaluation of the chemical and physical variations which occur during the simulated processes.
4. Measurements of physical and chemical parameters, such as temperature, corrosion product thickness of the treated samples, by instrumental analysis at different stages of the corrosion process.
5. Creation of a mathematical model for the simulation of the copper corrosion phenomena.
6. Selection of the eligible data to be used in the mathematical simulations.
7. Calibration of the mathematical model and simulations.
8. Validation of the methodologies for real case application.

Experimental materials

For experimentation in a climatic chamber, particular attention was devoted to the choice of the alloy (copper and tin) and its chemical composition, the metallurgical

technique and its surface preparation. A binary alloy (Cu-12Sn), similar in composition to that of the ancient Greek statuary, was selected for its good strength and corrosion-resistant properties.⁴

The presence of only two elements (Cu and Sn) avoids the development of additional corrosion phenomena linked to the presence of lead, zinc, or nickel. The bronze samples used were obtained in collaboration with the Department of Chemical Engineering, Materials and Environments of the University of Rome 'Sapienza'.

The cast bronze chemical composition was 88% copper and 12% tin, both by weight. These were melted in an electric furnace at 1150°C and analyzed with Energy Dispersion System (EDS) and X-Ray diffraction (XRD). The metals were cast in a graphite die, then homogenised in an electric furnace at 600°C for 72 hours, in order to obtain monophasic alpha bronze microstructure.

'Wet and dry' corrosion test

A 'wet and dry' technique, as a weathering method, was used with the aim to simulate the effect of natural acid rain on bronze and to investigate the degradation of alloy specimens exposed to corrosion conditions.⁵

The wet test simulates severe corrosion conditions with a solution reproducing acid rain. Consequently the dry test simulates the outdoor dry corrosion conditions of the exposed material. A Kesternich corrosion test was carried out in a Erichsen Mod. 519/AUTO cyclic corrosion chamber (**fig. 45.1**) following the indication of DIN 50018 standard. This standard describes a 'wet and dry' corrosion test designed in order to evaluate the resistance of metallic surfaces to sulfur dioxide corrosion. Bronze specimens were exposed to an atmosphere containing about 200 ppm of SO_2 at 40°C and 100% RH for 8 hours (wet cycle). Subsequently, they were exposed to room conditions for 16 hours (dry cycle). Each 'wet and dry cycle was repeated 20 times.

Characterisation of corrosion product

The corrosion behaviour was monitored by performing measurements, as a function of time, on weight and colour parameter variations, on film growth composition (scanning electron microscopy (SEM) and EDS, cyclic voltammetry) and structures (XRD). At the end of the weathering tests, weight measurements were performed,

⁴ Clarelli, De Filippo and Natalini 2011, pp. 50–51; Clarelli, Fasano and Natalini 2008, pp. 149–16; Giavarini *et al.* 2008, pp. 14–22.

⁵ Bernardi 2008, pp. 83–89; Bernardi 2009, pp. 159–70; Wallinder 1997, pp. 2039–52; Wallinder 2000, pp. 1471–87; Wallinder 2001 pp. 2379–96; He 2001, pp. 127–46; Zhang 2002, pp. 2131–215; Jouen 2004, pp. 73–80; Sandberg 2006, pp. 4316–38; Bernardi *et al.* 2008, pp. 83–89; Bernardi *et al.* 2009, pp. 159–70; Odnevall Wallinder and Leygraf 1997, pp. 2039–52; Odnevall Wallinder *et al.* 2000, pp. 1471–87; Odnevall Wallinder and Leygraf 2001, pp. 2379–96; He, Odnevall Wallinder and Leygraf 2001, pp. 127–46; Zhang *et al.* 2002, pp. 2131–51; Jouen *et al.* 2004, pp. 73–80; as well as Sandberg 2006, pp. 4316–38.

¹ De Filippo 2010, pp. 21–28; Campanella 2011, pp. 281–95.

² De Filippo *et al.* 2010, pp. 21–28; Campanella 2011, pp. 281–95.

³ Clarelli 2011, pp. 50–51; Clarelli 2008, pp. 149–61; Giavarini 2008, pp. 14–22.



Figure 45.1. Erichsen Mod. 519/AUTO Cyclic corrosion cabinet (by the authors, 2011).

using a Sartorius balance with 0.1 mg sensitivity. Whereas the weight loss measurements give information on patina growth, the corrosion product determination allows the overall corrosion processes to be defined for each alloy component. The integration of the measurements of SEM-EDS and XRD furnished information on the bronze's corroded surface morphology and microstructure. SEM observations and X-ray Energy Dispersion System analyses were carried out both on the surface and on the specimen cross-sections. In this way, it was possible to identify the elements characterising the corrosion patina, to point out the morphology of corrosion products and to evaluate the patina thickness. XRD analysis, performed by a Philips X Pert Pro diffractometer with monochromatised CuK α radiation, was carried out on the specimen surfaces in order to identify the corrosion products.⁶

The XRD spectra were compared with the PDF (Powder Diffraction File) and MINCRYST databases. The thickness values of the patina were measured by SEM analysis (LEO 1450 VP), coupled with Oxford INCA 300 to get information about morphology and chemical composition in the same sample microareas. Using the detector for back scattered electrons (BS), it is possible to observe an atomic number which the microareas with composition at higher atomic number are visualised in clear gray scales. Furthermore, it was possible to select the different phases present on the surfaces and to evaluate their composition variation as a function of time.⁷ The instrument was equipped with an image analyser (IA) program capable of



Figure 45.2. Traditional three electrode configurations: 1. RE-Reference Saturated Calomel Electrode (SCE), 2. WE-Working Electrode and 3. AE Auxiliary Platinum Electrode (by the authors, 2011).

measuring the distance between points. High magnification of the sample cross section areas makes it possible to measure patina thickness with high precision⁸ considering that the SEM resolution is 4nm. Regarding the chemical composition of the phases present on the surfaces, the EDS systems were able to detect elements from boron with a quantitative detection limit of 0.2% by weight. To complement the employed techniques (SEM-EDS, XRD) and facilitate analysis of corrosion patina treated with and without sulfur dioxide, an electrochemical procedure was developed in this work.⁹ In recent years, voltammetric methods have been added to the available techniques for analysing metals, inorganic and organic pigments, ceramic materials, alteration products, minerals, and oxidation states.¹⁰ In this context, voltammetric methods, using cyclic voltammetry (CL), were applied in order to identify the metal compounds through the reduction of copper and tin oxides, sulfates and sulphides. Previously XPS characterisation was performed to identify the corrosion products on samples treated in a climatic chamber at 40° and 100% RH in the absence of sulfur dioxide. The electrochemical analysis was performed by cathodic reduction using a Bi-Stat Galvanostat- BIO-LOGIC. A classical three-electrode configuration was used, with a saturated calomel electrode (SCE) as a reference and a platinum electrode as an auxiliary (or counter) electrode (fig. 45.2).

Experimental conditions were carried out under static conditions at 30°C, 0.1 M sodium acetate, 70 ml, pH close to 7/8. The use of sodium acetate solution was due to the fact that at pH ~9 the solubility of the different copper compounds, oxide and hydroxide was minimum.¹¹

⁸ Goldstain 2003, pp. 1–689.

⁹ Domenech-Carbò 2000, pp. 275–89.

¹⁰ Domenech-Carbò 2010, pp. 363–79; as well as Tran 2003, pp. 2787–802.

¹¹ Bastidas 1997, pp. 129–33; Lengret 1991, pp. 697–702; Goldstein *et al.* 2003, pp. 1–689; Domenech-Carbò *et al.* 2000, pp. 275–89; Domenech-Carbò 2010, pp. 363–79; Tran *et al.* 2003, pp. 2787–802; Bastidas, Lopez-

⁶ Cullity 1978, pp. 1–531.

⁷ Cullity 1978, pp. 1–531.

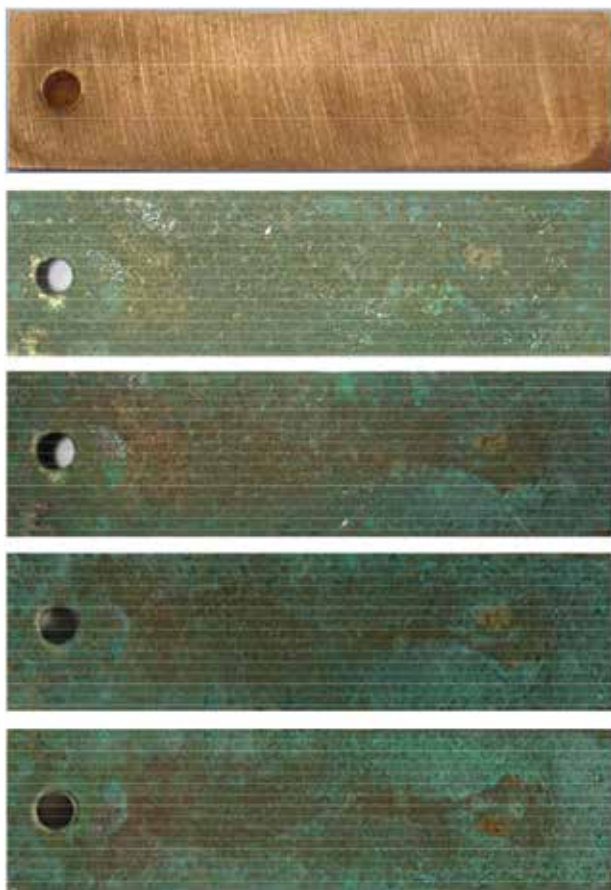


Figure 45.3. Macrophotos sequence related to Kesternich treatments (5, 10, 15, 20 cycle) (by the authors, 2011).

The solution was deaerated by bubbling nitrogen for 20 minutes before the start of the experimentation. A reduction scan in 0.10 M sodium acetate solutions for the bronze samples was obtained at a potential sweep rate of 5 mVs—first starting at the open circuit potential (OCP) up to -1.9V/SCE . A surface area of about 5 cm^2 was exposed to the working electrode and the remainder of the sample was masked using a parafilm corrosion protection tape. In the experiments the bronze were compared with a bronze sample exposed only to humidity.

Since the products (**fig. 45.3**), which developed on bronze samples exposed only at 100% of RH and 40°C , form very thin layers (only a few nanometers thick) with a composition that includes oxygen and hydrogen, it was necessary to utilise surface sensitive techniques. X-ray photoelectron spectroscopy (XPS) can provide information about the composition of these ultrathin layers.¹² The analyses were performed in an ultrahigh vacuum chamber equipped with a hemispherical electron energy analyser, an anode (Mg) X-ray source and an ion gun. The XPS spectra were collected with constant pass energy of 25 eV, with steps of 0.1 eV. Survey scans were

acquired from 900 to 940 eV of photoelectron kinetic energy.

Another approach for the evaluation of the patina growth starts from the observation that most copper corrosion products are coloured. In this way, each patina, formed by the contribution of more than one copper compound, assumes a specific colour. For this reason, the colourimetric space parameter variations can be used as evaluation instruments of the patina modification. Corroded surfaces were characterised by colourimetric CIELab non-destructive measurements. CIELab test analyses of the spectrum of light reflected by surfaces were performed using a spectrophotometer. The colourimetric method is a non-destructive investigation technique based on surface colour quantification. It can give useful information on modifications that occur on a metallic surface during a corrosion process. The detected signals may be represented as a graph with the wavelength (nm) on the horizontal axis and the reflected light percentage (%) on the vertical axis. The graph can be used to obtain the reflected light brightness (L^*) and two different parameters (a^* and b^*), which quantitatively define the reflected light putting it in the tridimensional CIELab1976 colour space.¹³ L^* is always positive and represents the light brightness (a black surface gives $L=0$ while a white surface gives $L^*=100$); a^* is the redness/greenness ratio and defines the position on the redness-greenness axis (a^* is positive in the red region, negative in the green region); and b^* is the blueness/yellowness ratio and defines the position on the blueness-yellowness axis (b^* is positive in the yellow region and negative in the blue region). The colourimetric data, acquired with a X-Rite SP64 Portable Sphere Based Spectrophotometer, takes the average of 3 measurements, performed in the same area with the employment of a mask for its selection. In this way, comparison is possible between the CIELab parameter variations as a function of time and corrosion product formation. Patinas with comparable colourimetric measurements are probably formed by the same copper compounds.¹⁴

Results and discussion

The early stage of exposure of Cu-12Sn bronze samples to 200ppm sulfur dioxide at 40°C and 100% relative humidity (RH) mainly produced copper hydroxyl-sulfate (brochantite and chalcantite), cuprous oxide, and tin sulfide (ottemannite). The tarnish product layer also contained traces of tin oxide (**fig. 45.4**).¹⁵ As determined by XRD analysis, the brochantite formation is predominant, increasing with the number of corrosion cycles (**fig. 45.5**). On the other hand, the chalcantite formation is detected during the early stage of the corrosion process and its characteristic peak intensities decrease as a function of time. The same consideration can be made for the ottemannite

Delgado and Lopez 1997, pp. 129–33; as well as Lengret, Kartouni and Delahaye 1991, pp. 697–702.

¹² Squarzialupi 2002, pp. 199–204.

¹³ Oleari 1999, pp. XX–442.

¹⁴ Squarzialupi *et al.* 2002, pp. 199–204; as well as Oleari 1999, pp. XX–442.

¹⁵ De Filippo 2010, pp. 21–28.

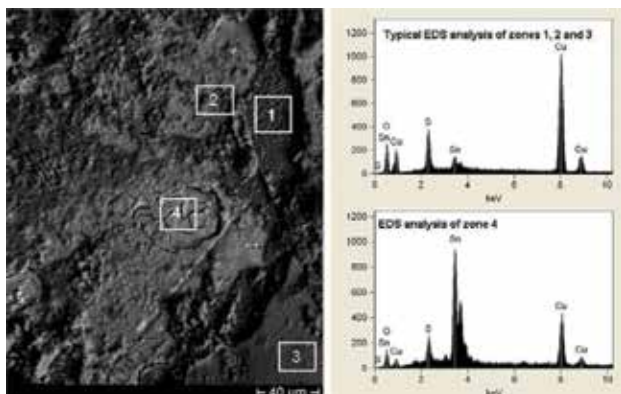


Figure 45.4. SEM observation and EDS spectrum of the surface of a specimen exposed for 1 cycle to SO_2 (by the authors, 2011).

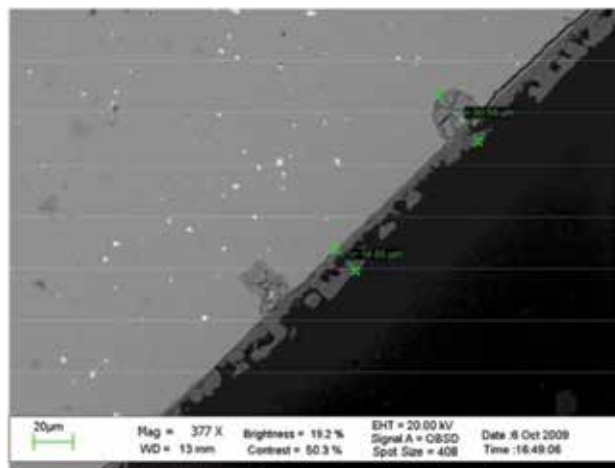


Figure 45.6. SEM observation of the cross section of a specimen exposed for 15 cycles to SO_2 (by the authors, 2011).

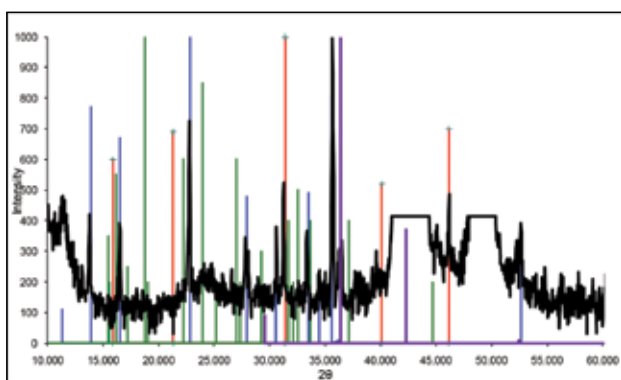


Figure 45.5. XRD Spectrum of the surface of the specimen exposed for 1 cycle to SO_2 (Blue= Brochantite PDF #43-1458, Red= Ottemannite Card N. 3406 Mincrust database, Green= Chalcanthite PDF #11-0646, Purple= Cuprite. PDF #05-0667) (by the authors, 2011).

formation, detected with SEM-EDS in localised microcrack areas, which are rapidly covered by basic copper sulfates. During the exposure of bronze samples, at 40°C and RH 100%, without sulfur dioxide, a thin corrosion patina was observed. XPS analysis indicates that the tarnish corrosion products consist of Cu_2O , $\text{Cu}(\text{OH})_2$ and Cu metallic traces. Electrochemical analysis (cyclic voltammetry) performed on bronze samples treated both with and without sulfur dioxide reveals two characteristic cathodic reduction peaks: the first between $-0.2\text{V}/-0.6\text{V}$ (SCE) and the second between $-1.0\text{V}/-1.3\text{V}$ (SCE). The first peak is ascribed to the Cu_2O , the second one probably to copper sulfates.¹⁶ It is not clear if these last peak belongs to the same copper corrosion product (brochantite or chalcanthite), but most probably the Cu^{2+} cathodic reduction peaks belong to brochantite. The Cu^{2+} cathodic reduction peaks are shifted toward higher potential and intensity values, probably due to the increase of corrosion phenomena and of the thickness of the brochantite layer. These layers can cause an overpotential for the corrosion of copper (II) reduction. The morphology and structural characterisation was followed by corrosion patina thickness estimation. The

¹⁶ Bastidas *et al.* 1997, pp. 129–33.

sample cross sections were used for the measurement of the tarnish thickness with the employment of SEM-EDS (fig. 45.6). The SEM measurements of patina thickness were carried out in different parts of the samples' cross-sections and the average values were considered for the mathematical model simulations.¹⁷

Considering the complex patina structures, the results obtained indicate that cuprite (where copper is in the Cu^+ oxidation state) is the first step in the formation of copper patina. This is consistent with what is reported in the literature about the whole process of corrosion product formation.¹⁸ A water layer forms quickly on a copper surface when it is exposed outdoors, and the surface also oxidises at the same time. Gaseous sulfur dioxide and sulfate particles are then deposited on the electrolyte on the cuprite. Dry deposition of the above acid compounds reduces the pH of the adsorbed water, and this promotes the dissolution of cuprous ion (Cu^+) and its oxidation thus forming cupric ions (Cu^{2+}). In detail copper (I) ions in solution disproportionate to give copper (II) ions and a precipitate of copper (I). When the cupric and sulfate ion concentrations in the electrolyte are high enough to form brochantite, this phase starts to precipitate on the cuprite. For this the observed surface structure can be reasonably explained from the brochantite formation mechanism.¹⁹ The described process is in agreement with the brochantite formation mechanism proposed by O. Wallander *et al.*²⁰ They indicated that, in the initial oxidation process, cuprite formation is followed by posnjakite ($\text{Cu}_4\text{SO}_4(\text{OH})_6 \cdot \text{H}_2\text{O}$), as a precursor phase to brochantite ($\text{Cu}_4\text{SO}_4(\text{OH})_6$). They

¹⁷ De Filippo *et al.* 2010, pp 21–28; as well as Bastidas, Lopez-Delgado and Lopez 1997, pp. 129–33.

¹⁸ Fitzgerald 2006, pp. 2480–509; MacLeod 1981, pp. 16–26.

¹⁹ Graedel 1987, pp. 721–40; Aastrup 2000, pp. 957–67; Aastrup 2000, pp. 2543–51; Watanabe 2003, pp. B37–B44, Krättschmer, Odnevall Wallinder and Leygraf 2002, pp. 425–50; Fitzgerald, Nairn and Skennerton 2006, pp. 2480–509; MacLeod 1981, pp. 16–26; Chawla and Payer 1990, pp. 60–64; Graedel 1987, pp. 721–40; Aastrup *et al.* 2000, pp. 2543–51; Aastrup *et al.* 2000, pp. 957–67; Watanabe, Higashi and Ichino 2003, pp. B37–B44; as well as Krättschmer, Odnevall Wallinder and Leygraf 2002, pp. 425–50.

²⁰ Wallinder 1995, pp. 3682–89.

also revealed the existence of intermediate amorphous compounds, including copper and sulphate, before the formation of posnjakite and brochantite. In our case, both posnjakite and amorphous compounds were not detected during the corrosion tests, probably due to the high levels of SO_2 which favoured the formation of brochantite.

Mathematical model

Following previous works on this topic, and in particular considering the corrosion scheme proposed by MacLeod and Payer,²¹ a new mathematical model was developed in collaboration with the Italian National Council and recently presented at the seventh International Congress on Industrial and Applied Mathematics (ICIAM 2011) in Vancouver, BC. (Canada). It is based on the mathematical approach used by Natalini *et al.*²² to describe brochantite ($\text{Cu}_4\text{SO}_4(\text{OH})_6$) formation. The essential phenomena involved in atmospheric copper sulfation are observed to occur according to the following simplified physical model based on input data, such as: the metal (copper), the non-protective oxide layer (Cu_2O), the porous and cracked corrosion products layer (brochantite layer), the adsorbed electrolyte film and the air.²³

In this model, the corrosion patina is mainly made up of cuprite and consequently of brochantite. In detail, the chemical reactions occur in some moving boundaries (copper-cuprite, cuprite-brochantite and brochantite-air boundaries). It is important to notice that the model, consisting of a mass balance in these regions, considers only the copper corrosion products and not the tin corrosion phenomena. This is due to the fact that a simplification of the whole corrosion mechanism was necessary for better development of the mathematical model.

Mathematical model calibration and simulations

The mathematical model was calibrated with the selected data, based on an evaluation of the results obtained by the methodologies used. In the model, only the thicknesses related to the first, third and fifth cycles were considered. After the fifth cycle, a slight weight loss from the samples occurs, due to the leaching effect caused by the prolonged exposure times in the climatic chamber.

The following brochantite thicknesses after 8.24 and 40 hours (average of more than 20 measurements) were measured (**tab. 45.1**): The numerical scheme of the mathematical model was used to simulate 40 hours of SO_2 exposure (five cycles of eight hours) with *Matlab* tool employment. The diffusion coefficients of sulfur

dioxide in brochantite (D_s) of water in brochantite (D_w) and oxygen in cuprite (D_{wO}), were calculated in cm^2/sec ($D_s = 2.75 \cdot 10^{-6}$, $D_w = 2.75 \cdot 10^{-6}$, $D_{wO} = 2 \cdot 10^{-7}$) and then were calibrated within the experimental conditions. The calibration line was obtained by treating with least squares method. The brochantite growth behaviour was tested for different values of diffusion coefficients (**fig. 45.7**).

Once the model was calibrated, it was used to obtain information about the brochantite layer under different climatic conditions. Simulations using the data, obtained by sulfur dioxide sensors placed in the city of Rome,²⁴ were performed with the aim to show the possible predictive power of the model in real-world conditions.

Conclusions and future directions

In order to monitor the growth of bronze corrosion patina in an outdoor environment, this work investigated the behaviour of a Cu-Sn alloy exposed to sulfur dioxide atmosphere. A 'wet & dry' technique, as a weathering method, was performed with the aim of simulating the effect of natural acid rain on outdoor bronzes. In detail, a Kesternich test was performed in a climatic chamber, complete with specimen holders, temperature regulator, and test timer counter. The opportune corrosion laboratory conditions (200 ppm of sulfur dioxide, 40°C and 100% RH) were established with the aim of reproducing a real accelerated corrosion atmosphere. Both the corrosion tests and the bronze ingots, prepared as reference samples, were conducted in the Department of Chemical Engineering, Materials and Environments at the University of Rome 'Sapienza'. Several attempts were made to individuate the most suitable parameters as the basis for the mathematical model. For this, it was necessary to evaluate all the aspects connected with the patina formation process, through morphological, compositional and structural investigations. The qualitative analysis by XRD revealed that the patina which developed on the bronze substrates consists of a mixture of the following mineral phases, namely Cuprite (Cu_2O), Brochantite ($\text{Cu}_4\text{SO}_4(\text{OH})_6$), Chalcantite ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$), Ottemannite (Sn_2S_3), with traces of Cassiterite (SnO_2). Tenorite (CuO) did not appear in any of the layers observed. It should be stressed that the XPS analysis performed on patina exposed to 40°C and 100% relative humidity without sulfur dioxide detected the presence of copper(I) oxide and Copper(II) hydroxide ($\text{Cu}(\text{OH})_2$). The comparison between XRD, SEM-EDS and cyclic voltammetry (CL) analysis allows us to draw the following main conclusions:

- Cuprite was identified as the first crystalline patina constituent on as-cast bronze alloys treated with and without sulfur dioxide.
- Chalcantite is the first copper-hydroxyl sulfate, according to the Gibbs free energy variation, to develop

²¹ Mac Load 1981, pp. 16–26; as well as Payer 1995, pp. 91–102.

²² Clarelli, Fasano and Natalini 2008, pp. 149–68.

²³ Clarelli, Fasano and Natalini 2011, pp. 50–51; Clarelli 2011, in preparation; Odneval and Leygraf 1995, pp. 3682–89; Mac Load 1981, pp. 16–26; Payer *et al.* 1995, pp. 91–102; De Filippo, Clarelli and Natalini 2011; Clarelli, Fasano and Natalini 2008, pp. 149–68; as well as Clarelli, De Filippo and Natalini in preparation.

²⁴ Piazza Fermi 2005.

Table 45.1. Measurements of thickness (by the authors, 2011)

Tab. 1: Thickness measures		
Time of measure (hours)	Average value (cm)	Standard deviation
8	$5.4418 \cdot 10^{-4}$	$1.7331 \cdot 10^{-4}$
24	$9.2672 \cdot 10^{-4}$	$1.8473 \cdot 10^{-4}$
40	$13.2522 \cdot 10^{-4}$	$2.4102 \cdot 10^{-4}$

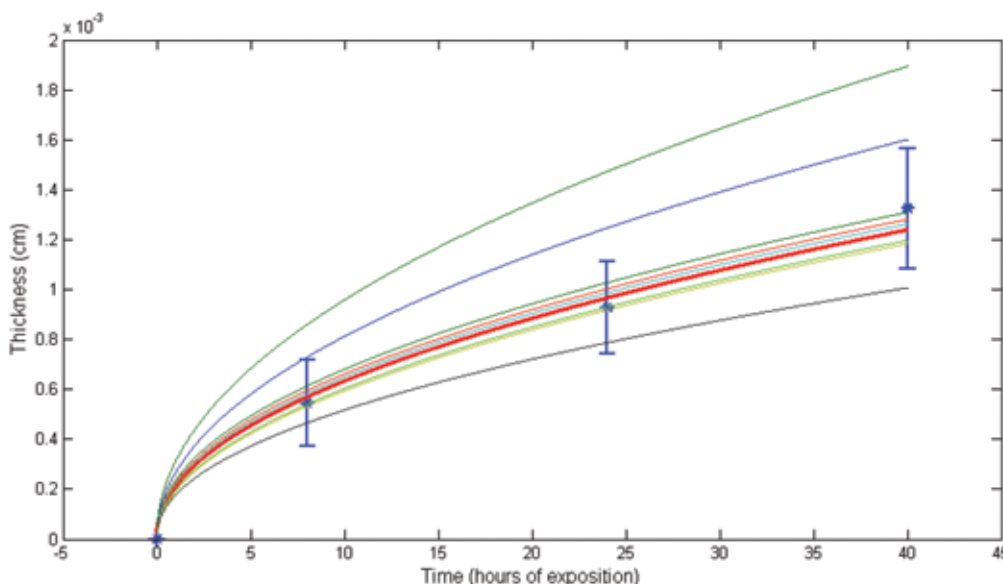


Figure 45.7. Different simulated brochantite growth. The best fit in red and the experimental data in blue (by the authors, 2011).

on the substrate. Its characteristic peaks were detected only during the first corrosion cycles and could be formed as a precursor to brochantite.

- Brochantite, which is the most commonly found copper salt in natural patinas, was the main corrosion product on the bronze samples. Its presence was detected during the first cycle up to the 20th cycle. SEM observations revealed that it was composed of small crystals homogenous for dimensions and *habitus*, which formed a compact layer on the bronze substrate.
- Ottemmanite is a tin sulfur compound. XRD analysis detected it only during the first corrosion steps. SEM-EDS observation shows its compact morphology, which was rapidly covered by copper sulfate formations, and in cross section it was possible to show that it forms pit corrosion.

The obtained results, in agreement with previous studies, underline that copper patina typically consists of two distinct layers: a continuous cuprite layer and a porous

layer of brochantite. The copper sulfation phenomena was taken into account when creating of a mathematical model. The unidimensional model, developed in collaboration with the Italian National Council (IAC-CNR), simplified the physical model as follows: the metal (copper), the non protective oxide layer (Cu_2O), the porous and cracked corrosion product layer (brochantite layer), the adsorbed electrolyte film and air. The diffusion coefficients of sulfur dioxide in the brochantite layer, of water in brochantite and the oxygen in cuprite were calibrated with the laboratory experiments (patina th.).

The results of the model, based on selected measurements, lead us to foresee a good potential for its use in the conservation of bronze in outdoor environments. The search for optimal parameters as input data for the mathematical model yielded important results, as well as regarding the possibility of applying new methodologies in the study of bronze, by revealing not only their advantage but also their limitations. The mathematical

model simulations demonstrated the possibility of monitoring of the corrosion phenomena on the basis of not complex measurements. A good correlation between each step of patina growth and the colourimetric parameter variations foresees the possibility of the oncoming use of this method for the fast monitoring of bronze corrosion.

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Part IV

**Common Bibliography of the Greek, Roman and Byzantine
Bronzes from Anatolia and Neighbouring Regions**

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